Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • AUGUST, 1960 • 50¢
Published By Alfred M. Best Company, Inc.

ZEPHYRAIR

Acme's New Improved

"CA" MASK

(COMPRESSED AIR)
Constant Flow Design

FOR USE IN:

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In Welding—By Specifying Acme Pur-A-Weld Face Piece.

Leading and Grinding Operations with Hood Covers.

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MANUFACTURED BY THE ONLY EXCLUSIVE MANUFACTURER OF INDUSTRIAL GAS MASKS

RECENT CIRCULARS AVAILABLE

#597a	Acme "CA" Mask—Compressed Air Supply
#604	Pur-A-Weld—Special Gas Mask for Welders
#591	Useful Information for Users of Insecticides & Fumigants
#599	Mercury Recovery and Vapor Collection
#601	Fireman's Smoke Mask
#605	Canister Information

ACME PROTECTION EQUIPMENT COMPANY

1253 Kalamazoo Street **South Haven, Michigan**

(For details, use Key # U-1 on card on page 1)

LOSS STOPPERS

The bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

MISCELLANEOUS

Air and Electric Signal Systems .. 366
Sperti Faraday, Inc. An 88-page manual which describes signal systems and lists specifications of horns, bells, buzzers, chimes and sirens. Includes sections on gravity drop and lamp type annunciators and accessory equipment, such as door openers and clocks. Proper signal selection is illustrated by charts and diagrams.

Epoxy Resin Formulator 367
Ren Plastics, Inc. Many industrial applications for these resins are brought out with detailed explanations and photographs in this informative pamphlet. These include use in foundries, in the aircraft and automotive industries, for electrical insulating systems, etc.

Expanded Metal Partitioning 368
Globe Co., Products Division. Illustrated 4-page brochure emphasizes the speed, simplicity and economy with which storage racks, bins, shelves, tables and other materials handling equipment can be built with versatile slotted angle metal sections. Safe load tables and computation instructions are included in pamphlet.

PERSONAL PROTECTIVE EQUIPMENT

Hard Hats and Caps 369
Willson Products Div., Ray-O-Vac Co. New eight-page bulletin contains information on aluminum and fiberglass headgear, winter liners, head lamps, etc. Headgear features geodetic suspension for dissipation of impact shock waves; lightweight and comfortable. Insulated models for electrical workers.

Hand Protection 370
Advance Glove Mfg. Co. Illustrated 12-page catalog covers gloves of every style and a wide variety of fabrics. Included are gloves which resist water, chemicals, oil and heat. One section is devoted to double-quilted types; another to double-palm and chore types. Knit-wrist, band-top, gauntlet and reversible styles are shown.

FIRE PROTECTION

Smokers' Disposal Unit 371
Notte Safety Appliances Co. Two-color, two-page bulletin describes the virtues of a portable disposal station for cigarettes and cigars. These are: usefulness in promoting safety and cleanliness, ease of maintenance and lightness of weight. The Smoker Disposal comes in two models, for office and factory.

All-Class Fire Extinguisher 372
Alim Corp. Attractive four-page brochure lists information on the operation, maintenance, construction and specifications of new extinguisher which has UL rating for all classes of fires. Extinguishing agent, also outlined herein, is a chemical powder which acts to cool and smother flame, and prevent re-ignition. Extinguishers are easy to operate and require a minimum of maintenance.

INDUSTRIAL HYGIENE

First Aid Kits 373
Mine Safety Appliances Co. 10, 16, 24 and 36-unit kits, packaged in all-weather cases, are described in this bulletin. Open lid serves as shelf when kit is mounted horizontally on wall or vehicle. Contents of kits and refill information also included.

Mercury Vapor Detector 374
Mine Safety Appliances Co. Bulletin gives complete details on apparatus designed to make on-the-spot checks for dangerous concentrations of mercury vapor. Unit is quantitative field-type colorimetric instrument which indicates vapor concentrations in the range of 0 to 1.0 milligram per cubic meter. Step-by-step operation of the detector is explained, as well as instructions for sampling from remote locations. Industrial applications cited.

High Volume Air Sampler 375
Air Sampler Div. of Staplex Co. Four-page brochure announces portable air sampler, originally developed by the Atomic Energy Commission and now available to private industry. Unit employs a turbine type blower principle for successful sampling of air containing particles as small as one hundredth of a micron in diameter. Complete unit, including heavy duty pump and high speed motor, weighs only 10 pounds. Industrial uses include measurement of smoke and smog, air hazards in mines and occupational dusts in factories.

Cyclonic Dust Separators 376
The Day Co. 8-page bulletin in two colors includes performance data, installation photos, and selection and dimension charts for Dual-Clone Separators and Supports. In addition to basic principles of cyclonic dust separation, units utilize internal "skimmers" which produce a 2-stage separation within the collector. Sizes for volumes from 250 CFM to 23,750 CFM of air.

Automotive Exhaust Purifiers 377
Oxy-Catalyst, Inc. Four-page bulletin includes performance data and other useful information on air purifying mechanisms for engines using LP gas, diesel fuel or leaded gasoline. Units may be used on fork trucks, stationary engines, power sweepers, over-

(Continued on next page)

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AUGUST, 1960 **Please send me the following free data**

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Free Bulletins (Cont'd)

the-road trucks and construction and mining equipment. Units are said to eliminate up to 95% or more of carbon monoxide and high percentages of other objectionable exhaust elements.

Portable Air Sampler 378
Gelman Instrument Co. Short bulletin gives component and application data for lightweight air sampler designed to withstand hard usage. Also includes information on various sampling papers, such as uses and prices. For work with radioactive aerosols, toxic dusts, etc.

MATERIALS HANDLING

Hoist and Crane Equipment 379
Wright Hoist Div., American Chain & Cable Co. Informative 8-page folder offers well-illustrated descriptions of Wright line of motor-operated hoists and trolleys, electric chain hoists, hand-operated units, various types of cranes, etc.

High Lift for Industrial Trucks ... 380
Yale & Towne Mfg. Co. Ample data on performance and specifications of Yale Triplex masts is contained in this six-page illustrated folder. The mast is an extra-high lift, hydraulically-operated unit with normal collapsed-mast height headroom clearance for use on industrial trucks.

Versatile Winch-Hoist 381
City Engineering Co., Inc. Nine ways to use the 60-pound My-Te portable electric winch and hoist are shown in new 4-page bulletin. Designed to lift 2500 pounds and pull 5000 pounds, it is said to be the lowest priced winch-hoist in this capacity range. Unit mounts on truck, car or boat, etc., with just six bolts. Works off any 6 or 12-volt battery.

PLANT MAINTENANCE

Boiler Maintenance Chart 382
Commercial Boiler Control Co. Newly designed Boiler Maintenance Check Sheet Chart is useful to anyone concerned with such maintenance. Chart may be used for oil, gas or coal fired automatic units; lists all pertinent information with regard to the boiler and serves as handy record of all maintenance activity performed.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Number Key	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
106	Respirators & Masks
109	Safety Belts
110	Safety Gloves
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
	FIRST AID AND HYGIENE
122	Sanitary Drinking Facilities
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126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Throat Medication
131	Eye Wash Fountains
132	Portable Ventilators
133	Dust Collectors
135	Hearing Protectors
136	Noise Analysis Equipment
137	Noise Mufflers
	FIRE PROTECTION
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140	Fire Extinguishers
141	Safety Cans
142	Fire Alarms
143	Safer Solvents

Key Number	Subject
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145	Drum Safety Valve
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148	Watchmen's Control Systems
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150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
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163	Floor Cleaning Machines
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168	Ultrasonic Flaw-Detector
	LADDERS & HANDLING
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176	Fork Truck Steering Aid
	GUARDS
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180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
196	Safety Poster Kit

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NEW YORK 38, N. Y.

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for further data on ADVERTISED PRODUCTS, NEW PRODUCTS, FREE BULLETINS & CATALOGS

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Safety Maintenance

formerly "SAFETY ENGINEERING"

Volume 120, Number 2 **August, 1960**

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Cover picture from Minnesota Mining & Mfg. Co.: Maintenance man at Esso Bayway refinery wearing aluminized asbestos clothing for protection from heat and splash during in-service repairs of operating units.

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE

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it's SAFE to say

● PEOPLE IN GLASS HOUSES

Even when those glass "houses" travel on wheels, the occupants need the best possible form of protection against injury caused by flying particles or pointed daggers made of glass.

Every automobile manufactured in the United States has a windshield made of laminated safety glass because this glass "sandwich" of two pieces of plate glass with a strong plastic interlayer is the only glass meeting the exacting requirements of the American Standards Association for automobile windshields.

Because of the increasingly widespread use of tempered glass—often referred to as heat-treated or case-hardened glass—in all windows except the windshield, a brand-new controversy has arisen between factions who are convinced that tempered plate glass is a superior form of protection because it is stronger and thus resists shattering while others advocate laminated safety glass with plastic fillers for the reason that it is claimed to be less likely to result in small particles cutting or blinding the occupants in the event of glass breakage.

In the 1930's, SAFETY MAINTENANCE was well in the forefront of a movement to require the use of laminated safety glass in automobiles to prevent the Monday morning statistics of cut glass accidents resulting in pierced jugular veins, blindness and other less tragic glass injuries. This publication advocated the passage of laws making mandatory the use of laminated safety glass in motor vehicles, and its editors made personal appearances before various state legislatures in behalf of the movement designed to reduce the appalling aftermath of flying glass accidents.

Through the years, there has been a wider use of tempered glass in side and back windows with the result that with the introduction of the 1961 car models, the majority of all cars will be equipped with non-laminated glass whose proponents say that it gives vastly superior resistance to blows from blunt objects, is far stronger and is less likely to inflict cuts.

It would seem that the car manufacturers are at odds with certain safety authorities as well as with an association representing thousands of automobile glass dealers who freely admit that an economic burden would ensure if they are forced to carry larger inventories of glass (tempered) which cannot be cut to size and therefore must be stocked in all sizes. Also, those dealers concede that tempered glass is somewhat more impervious to breakage and thus replacement orders might be fewer. On the other hand the dealers' association states that their interest in plugging for laminated safety glass in every window of the car is not entirely self-seeking but is based upon many advantages inherent in the laminated window lights as a prime safety measure.

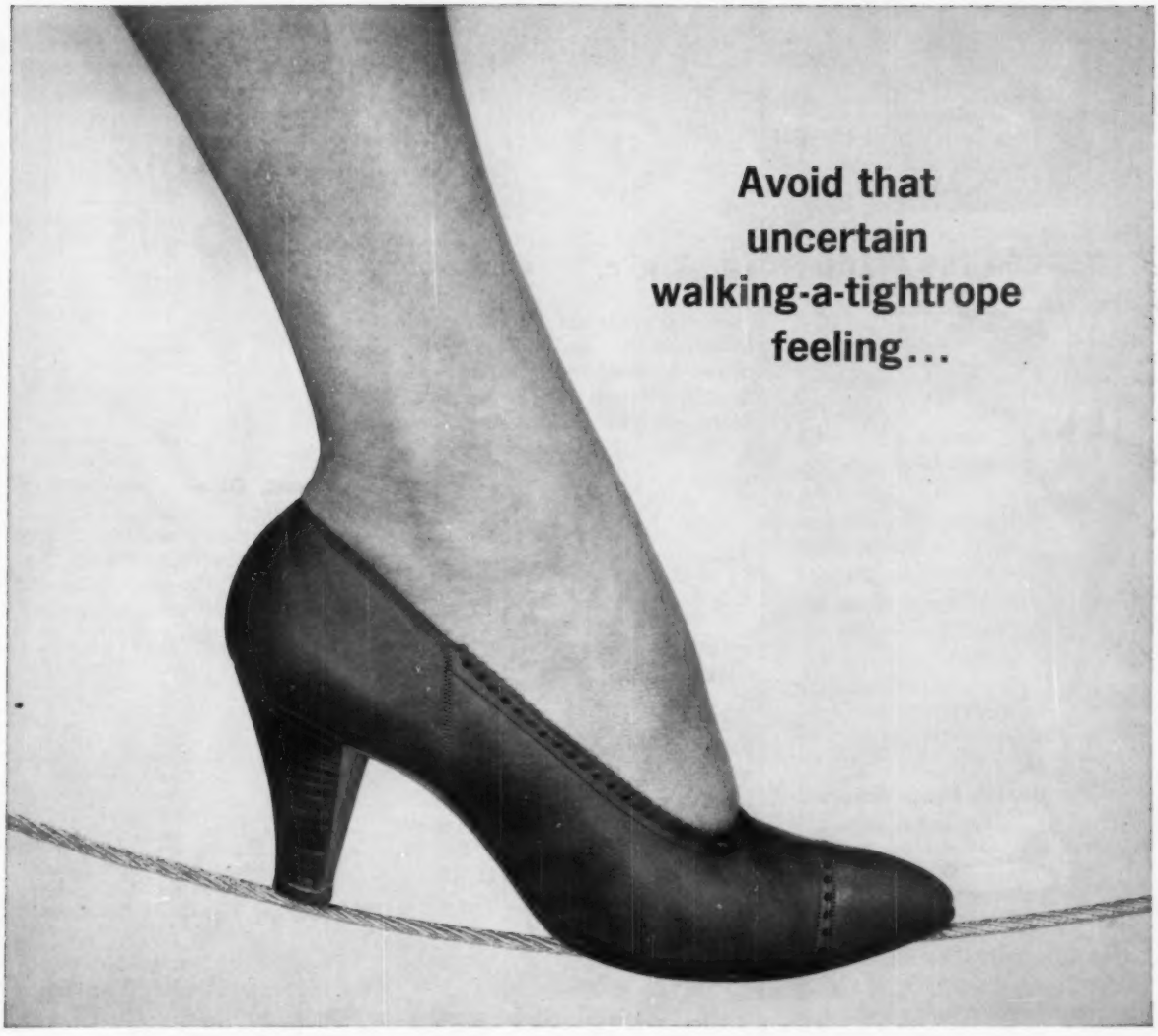
Pending further investigation, SAFETY MAINTENANCE is not ready to make its choice which will be based upon nothing more than public protection against the results of flying glass accidents. We know that laminated safety glass will crack under a comparatively light impact but the fragments will remain adhered to the plastic sandwich interlayer and thus the possibility of fragments flying into the faces of the car occupants is greatly lessened. Moreover, the plastic will bulge under a heavy blow and can even be pushed out by a kick in the event the car passengers are trapped by a jammed door. Tempered glass has no such advantage and it will not only shatter but will "honeycomb" in a manner to render it almost opaque.

Conversely, tempered glass has been said to offer much added support to the roof of a car and since it resists far greater impact, there is less chance of either shattering or scattering.

The controversy has reached the stage where the American Standards Association has taken steps to initiate and continue research for an unbiased study of both types of automobile plate glass to cope with today's driving conditions and the stylists' designs of far greater glass area than existed in the past.

This publication will remain indifferent to the profit motive of either faction in the now hotter war of laminated versus tempered safety glass. Instead, our objective will be founded upon which type of glass has the right to **imply** the highest degree of safety. At present, we do know that the public at large is not even aware of the existing controversy and must look to such guardians of safety as American Standards Association for unselfish guidance.

In the meantime, people in glass equipped vehicles only can hope that their car windows may be struck by the least damaging flying object.



For positive traction underfoot, plus lasting beauty, use floor wax containing LUDOX—Du Pont's anti-slip ingredient

With "Ludox" in the floor wax you get added safety underfoot. "Ludox" acts like a brake that promotes easy, effortless walking. And you get the lasting beauty only a fine wax can give your floors. Scratches and scuffs can be buffed out without rewaxing. For more information and a list of suppliers, write us or mail coupon below.

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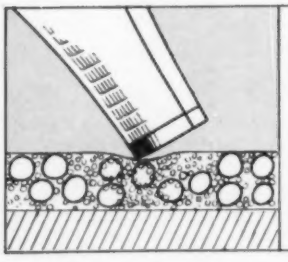
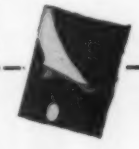


In floor wax, microscopically small spheres of "ludox" colloidal silica are mixed among larger wax globules. Under foot pressure the particles of "ludox" bite into the softer wax globules, resulting in a snubbing action that makes walking more carefree and comfortable.



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The Case of the Lanyard that broke the Fall, and the Man!

The lanyard was strong enough, the anchorage was solid—but the man in the case wasn't so solid. He was seriously—perhaps fatally—injured, because his lanyard had strength alone, but not the resilience needed to s-l-o-w the fall and minimize the shock!

Safe-Hi Unolyn Shock Absorber for Lanyards

is engineered to provide *stretch* to decelerate the falling man *gradually* without damaging shock or rebound. The *stretch* must be in the lanyard *not* the belt. Safe-Hi Safety Equipment *is* safe—just as safe as continuing research and a lifetime of experience can make it. Complete information on Safe-Hi Unolyn Shock Absorber Lanyards, Safety Belts, Ladder Shoes ...yours FREE. Just write for Catalog.

RC-1

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manufacturing co.

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(For details, use Key # U-3 on card on page 1)

THE FUTURE SHOWS

Raleigh, N. C. *September 14–17*

Second Annual Southeastern Maintenance and Engineering Show & Conference (State Fair Arena). Robert E. Zimmerman, Manager, John Harden Associates, P. O. Box 3173, Greensboro, N. C.

Chicago, Ill. *October 17–21*

Forty-Eighth Annual National Safety Congress and Exhibit (Conrad Hilton, Pick-Congress, Sheraton Towers, Morrison, and La Salle Hotels). R. L. Forney, Secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

New York, N. Y. *December 12–15*

Industrial Building Exposition & Congress (Coliseum). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Fort Wayne, Ind. *March 14–15*

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce Bldg., Ft. Wayne, Ind.

Cleveland, Ohio *September 27–29*

1960 Northeastern Ohio Safety Conference & Exhibit (Hotel Carter). R. W. Ramsdell, General Chairman, East 9th at Superior, Cleveland 14, Ohio.

Pittsburgh, Pa. *October 26–27*

Twenty-Fifth Annual Meeting of the Industrial Hygiene Foundation (Mellon Institute). Dr. H. H. Schrenk, Managing Director, Industrial Hygiene Foundation, 440 Fifth Ave., Pittsburgh 13, Pa.

Chicago, Ill. *January 23–26*

Twelfth National Plant Maintenance & Engineering Show and Conference (International Theatre). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

CHECK LIST of aids to production

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Moldable Ear Plugs 54
Soundproof Louver Doors 54
New Audiometric Room 54
Waterless Hand Cleaner 63
Sequential Air Sampler 63
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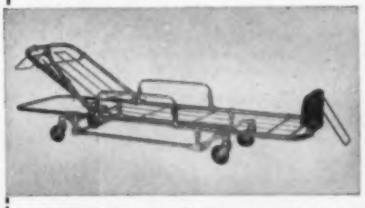
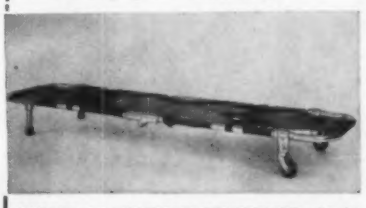
finest quality COTS and STRETCHERS for emergency use

● Washington's complete line of ambulance cots, stretchers, cot fasteners and other emergency equipment has featured the finest craftsmanship and highest quality in the industry, for over 33 years! First aid and rescue squads, fire departments, factory hospitals and first aid rooms have always depended on Washington for their complete needs. Washington "safety engineered" equipment is fully guaranteed —gives you the best for the same price as ordinary equipment.

MODEL 54-L ELEVATING COT—A Washington exclusive design. Elevates to full hospital bed height, yet lowers to only 9½" high! A perfect cot for vehicles with limited head room and overhead hanging stretchers. Here's all the advantages of an elevating cot—plus extra head room when lowered.



MODEL 21-L LOW COT—Only 8¼" high! A really low cot for cars with less head room or with overhanging stretchers. Another Washington EXCLUSIVE design, to meet changing car conditions.



MODEL 11 FOLDING STRETCHER—Lightweight and rugged, folds to 3¼" high. Ideal when an extra stretcher is needed in a hurry!

See your jobber or write for FREE catalog.

WASHINGTON
Products Company
Washington Court House, Ohio

(For details, use Key # U-4 on card on page 1)

Famous last words...

We have all the STONEHOUSE SAFETY SIGNS we need...

...but ONE!

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Stonehouse **SIGNS**

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Name _____

Title _____

Company _____

Address _____

City _____

State _____

(For details, use Key # U-5 on card on page 1)

HOW TO PULL A SAFETY PROGRAM OUT OF A NOSEDIVE

The sudden appearance of a scaly-headed monster in the lobby of Goodyear's general offices in Akron, Ohio, would not have caused more alarm or action than was taken when the industrial accident figures for the company's Akron plants were compiled for January.

And the results were just as startling.

Goodyear's worldwide accident frequency rate for 1959 was 2.17 accidents for every million man-hours worked, well below the average for the rubber industry.

However, the Akron plants during January had 15 accidents. The rate had soared to 16.2, when their 1959 rate was only 2.21.

"You can't tell for sure," said R. A. Manning, manager of safety, "but it is likely that with such a good record in the bag for 1959, there was a letdown during the first month of 1960. And accidents."

None was serious, the worst being the loss of the first joint of one finger.

However, when the safety figures were delivered to top management for its monthly review of the company's safety program, the desk pounding could be heard for miles.

The result was the most intensive effort Goodyear ever made to beat down the ugly head of a rising accident frequency rate, and the misery and suffering that go with it.

A pinpointing of the lower eche-

(Continued on page 16)

"Thar she goes" might be the title of this picture as Elsie Colvin, a Goodyear office worker, demonstrates the way NOT to use a ladder safely.

"Boy, this is the life!" says Gordon Geibel to himself seconds after he flipped a banana peel over his shoulder onto a busy walkway. Joe Ressiter didn't find the banana so enjoyable.

Granted, there are some things in a plant really worth watching! But it might have saved Don Sain and Dave Grant a few aches and pains if the driver had watched where he was going instead of stretching his neck to watch the employee, Mary Richards.

Staged Photos Dramatize Hazards in Safety Campaign

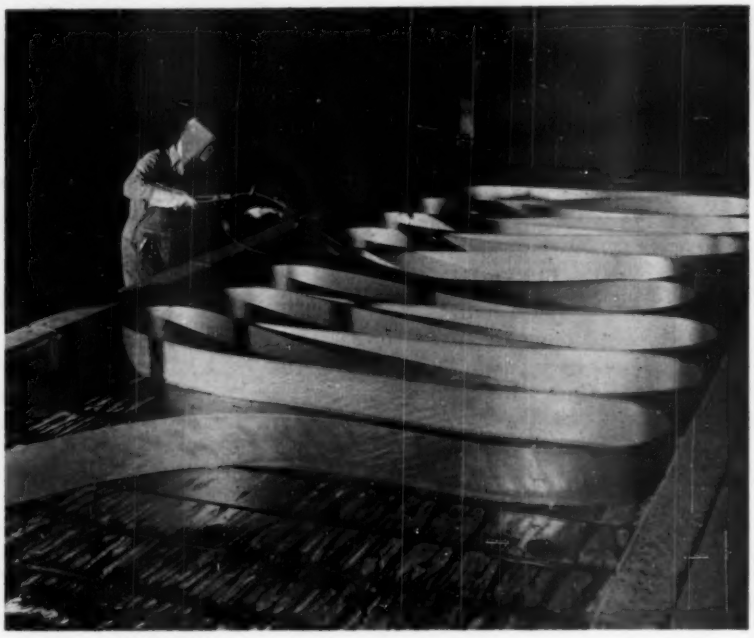


Fig. 2. Gaugers at this steel plant use aluminized mitts to protect hands from strip steel at 1,700 degrees Fahrenheit.

Heat-Fighting

by JOHN L. CURTIN
Manager, Research & Development
Heat Reflective Fabrics
Minnesota Mining & Mfg. Co.

Aluminized protective clothing, which revolutionized fire-fighting techniques, has been put to work in industry as an effective safeguard for workers who are exposed to radiant heat.

Aluminized fabric, a development of modern research, has come a long way since its public debut in New York four years ago. On that day a man walked into a ceramic oven one-eighth as hot as the sun and walked out unharmed after two minutes.

During those two minutes, temperatures up to 1,200 degrees burned a stack of wood in his arms, consumed the wicker chair he sat in, and broiled a steak which he held. The practical uses of this fabric were immediately apparent to industrial safety directors; and various types of aluminized fabrics have been tailored to protect men wherever radiant heat is a problem.

Maintenance workers at Esso Bayway refinery, Linden, New Jersey, are required to wear suits of aluminized fabric, which provide head-to-toe protection from flame and molten splash while they make in-service adjustments on operating units. (See the picture on the front cover.) Their ability to work with "hot" units eliminates costly delays. They no longer must wait for units to "cool down."

Gaugers at Acme Steel Company, Riverdale, Illinois, use mitts made of aluminized fabric to eliminate hand burns while they inspect steel strips heated to 1,700 degrees Fahrenheit. (See Figure

Fig. 5. Two employees of cement company wear aluminized clothing for protection from precipitator heat, fumes.

Fig. 1. A protective jacket of aluminized fabric guards this millworker from the intense radiant heat of the furnace.

Fabrics Come of Age

WEAR TESTS OF ALUMINIZED ASBESTOS

Base Fabric	Finish	Cycles to Destruction
1.2 lb. asbestos	Type 75	562
1.2 lb. asbestos	Type 71	187
1.2 lb. asbestos	not aluminized	70

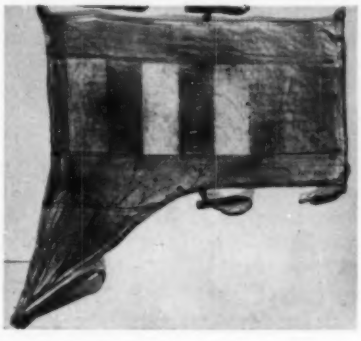
2.) Hoods, jackets and aprons also are worn in specialized jobs.

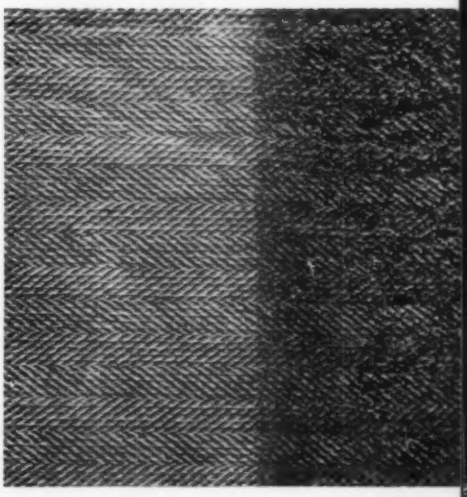
Aluminized asbestos, rayon and nylon are in wide use throughout industry in forms ranging from protective curtains to millworkers' aprons. Like the fabrics used in firefighting, they reflect more than 90 percent of all radiant heat. Unlike most firefighting gear, they are subjected to constant and heavy wear, heavy abrasion.

New Developments

Improved durability came this year with the development of type 75, an aluminized asbestos which remains effective two to three times longer on rugged jobs than former types of this protective fabric. Like earlier types, it is comprised of a micro-thin layer of pure aluminum bonded to 1.2-pound asbestos. Its durability stems from a special treatment of the inside of the fabric which provides excep-

(Continued on page 23)





Figs. 3, 4. (AT LEFT AND ABOVE) A millworker's apron, composed of two kinds of aluminized asbestos and subjected to constant abrasion, indicates improved wear qualities of the new type 75 over earlier type (dark areas) which wore away after many days of rugged use. Close-up contrasts their condition.

SAFE

by E. O. BURROUGHS, JR.
Manager Insurance Department
F. S. Royster Guano Co.
Norfolk, Va.

Housekeeping in industry means an orderly and efficient arrangement of materials, operations, tools, equipment, supplies, storage, and facilities in general. In its narrowest sense we normally think of "housekeeping" as keeping in order a facility that already exists. Using the home as a parallel, this would mean keeping the floors swept and polished, furnishings dusted, woodwork and windows clean, and everything in the house in its proper place.

In its full meaning, however, housekeeping has its start when the plans are drawn for the house. That is one of the reasons for paying an architect to draw up the plans. A good part of the efficiency in running the household depends upon the proper layout of the house.

So also in industry, housekeeping starts with the preparation of the plans. The layout of the plant must be designed for an orderly, efficient and even flow of materials with a minimum of interruption caused by congestion, spillage, rehandling, and mishap to equipment and personnel.

Good housekeeping plays such an important part in the safety of a plant that we might have a tendency to pigeon-hole it as a part of the safety program. In a sense it is, but viewed as stated above, good housekeeping is a vital part of production. Like safety, it is everybody's business, and again like safety, it is primarily management's responsibility to assure the existence of a clean and orderly work environment.

Poor Planning

Plans for new structures or for revisions in old buildings should be studied with a view to good housekeeping arrangements. It is frequently noticeable that an installation has introduced serious hazards. Here are a few that have come under my observation in the chemical industry—specifically in fertilizer plants.

Poor Planning #1: The location and arrangement of the ammonia measuring tanks has often shown that little or no thought was given to housekeeping. One, two or three measuring tanks will be located four or five feet from the mixer, which blocks the area from one direction. The measuring tanks themselves block the area from another direction. The piping from tanks to the mixer and the guard rail of the platform on which mixer and tanks are located block a third direction. This leaves only one avenue of access or escape from this enclosed 3′ x 3′ or 4′ x 4′ area.

Often this one avenue is partially blocked by a motor, a tailing chute, the supply pipes from storage tanks to measuring tanks, or some other piece of equipment. Thus in an area which can suddenly become unbearable if a leak develops in piping, connections, valves or tanks, or if a gauge glass cracks, or on a muggy day if a draft suddenly blows the fumes from the direction of the mixer, an operator may be trapped under conditions which force him to close his eyes and hold his breath while trying to get out of the contaminated area. Under such conditions, the hazard of the ammonia fumes is compounded by the additional hazards of tripping and falling or running into moving machinery, or against some other object—hazards frequently more serious than the ammonia fumes which will force a man out before they become dangerous.

Second Example

Poor Planning #2: In a new installation a steel access ladder passed less than 18 inches from a horizontal steel beam in such a way that an operator climbing the ladder would have his back to the

HOUSEKEEPING IN CHEMICAL PLANTS

5 Examples of Poor Safety Planning
8 Tips on Fire Prevention
4 Rules for Fire Control
. . . And Many Practical Sidelights on Good Housekeeping

beam. Hugging the ladder it was O.K., but leaning out from the ladder to any extent would put the steel beam over the head of the climber. Of course, you know what happened. When trouble developed and the operator started up the ladder quickly, intent upon reaching the trouble spot, he knocked himself out when his head hit the steel beam and he fell from the ladder to the area below.

Poor Planning #3: Somewhat similar is the situation where a ladder to the top of a large stock hopper, with the proper cage guard about 2 feet in diameter, had a horizontal pipe running past the side of the ladder which itself was 12 inches wide. Thus the pipe ran through the cage guard about 6 inches inside the cage. An operator climbing this ladder could easily dislocate or fracture a shoulder.

Poor Planning #4: In another instance, a hopper system was installed for a stock mill. A steel framework was installed to support the hoppers and the whole set-up was put in so low that a man seated in a payloader could barely pass under the structure, which was over a main aisleway. As a matter of fact, only certain types of motorized equipment could pass beneath it, thus restricting the choice of material handling equipment. If a build-up of material occurred in the area, a hazard existed even with the lowest type

Picture at right shows good planning of ladder cage with no obstructions.

of vehicle available. It would cost $12,000 to $15,000 to remedy the hazard, but of course one serious accident could cost that much in direct costs and two to three times that much in indirect costs.

Poor Planning #5: A similar situation existed when, to prevent having to go through the roof and build a penthouse, a hopper that was installed above the overhead railway system was so low that a tall operator has to duck to go beneath the hopper. Should any operator happen to stand up in the cab at that point, it would just be too bad.

The foregoing are illustrations to show the advisability of checking all plans for new installations and alterations, for safe or good housekeeping. The accidents caused by these hazards interrupt production and cause temporary or permanent loss of time of experienced personnel, thus increasing costs and decreasing efficiency of the plant operations.

Housekeeping & Efficiency

Turning to the more familiar aspects of housekeeping in existing facilities, how does housekeeping affect the efficiency of a fertilizer plant?

The orderly storage and handling of material, equipment and tools is not the job of a specialized employee, but is a part of the job of the individual employee in production—as a rule.

The screen attendant is responsible for the area around the screen. As a matter of routine handling he can keep this area in good order. As he leaves it for lunch and at the end of the day, he can remove the debris that has been removed from the fertilizer by the screen. He can bring down the bolts and nuts and the broken broom. If this is not done regularly as a part of his usual work, soon there will be an accumulation and time must be spent by someone, while production is shut down, to clean off this area.

The employee who keeps the bagger supplied with bags can remove the torn and discarded bags as he returns to the bag room, or the bags can be allowed to accumulate and become a tripping hazard, or even sometimes a fire hazard, if a truck driver happens to light a cigarette and toss the match aside.

Aid to Maintenance

In maintenance work the results of good housekeeping are peculiarly noticeable. In this department the first evidences show in the storage of repair and replacement parts and supplies, and in the general appearance of the shop and tool storage. Good housekeeping is particularly important in the busy season when valuable time and much cost can be wasted if tools and parts have to be searched out.

When a repair job has to be done, the tools, materials and parts should be quickly assembled. This job is not properly completed until protective devices have been put back in place, tools have been returned to their proper place, supplies have been stored, and debris and discarded parts have been properly disposed of.

A frequent casualty of repair operations is the ladder. Instead of being returned to its proper storage place it is all too frequently just set nearby, maybe in the edge of a passageway where mechanical equipment is frequently passing. The next thing you know the ladder has been damaged and is unsafe, with the result that either it has to be replaced or it is continued in use and causes a personnel injury.

When electrical circuits are discontinued, good housekeeping would require that the whole circuit with conduit, if any, be removed.

Aid to Fire Protection

Good housekeeping is particularly important in connection with both fire prevention and fire control. Good housekeeping removes the most common fire hazards around a plant—

1. Oily wastes and greasy rags should always be placed in a covered metal container provided for just this purpose. Thrown in a corner or stuffed in a wood cabinet, these rags are first rate fire hazards. This is especially true in a closed cabinet when the air is still so the heat can build up rapidly to start spontaneous combustion.

2. Control and junction boxes in the electrical system should be kept clear of a build-up of fertilizer dust both inside and outside the boxes. Such a build-up of damp material can result in an arcing between hot wires that could start a fire, or burn out equipment even where a fire did not occur.

3. Bulbs in extension cords should always be provided with substantial wire guards to keep the hot bulb from coming in contact with combustible surfaces. A bulb without a guard always stands the chance of resting against a combustible surface.

4. Gasoline, as a rule, is prohibited from buildings, except in the tanks of equipment. Equipment with leaking gas tanks or lines should not be continued in service until repairs are made.

5. Where welding or cutting operations are in progress, area should be cleared of moveable combustibles, standby watch should be kept during operation, and close inspection made, especially of corners, crevices, etc. where sparks might be concealed on completion of work.

6. Organics should be stored in a dry area where rain will not blow in on storage piles and close attention should be paid to see that no leaks develop in roof over the organics. Organics with high moisture content are subject to spontaneous combustion. Also extremely dry organics are susceptible to ignition from sparks from electrically powered equipment or from exhaust of gas powered equipment.

7. Yard areas around buildings and under platforms should be kept free of paper, trash, weeds, grass, splintered wood, etc.

8. Heating Units: Good housekeeping would assure, when heat is necessary in the plant in cold weather, that paper and trash would not be allowed around heating units and that the heating units at all times would be located with sufficient clearance from combustibles, both horizontally and vertically, to prevent extreme heating

or ignition of adjacent combustible surfaces.

Fire Control

From the standpoint of fire control, good housekeeping would assure:

1. That all first-aid fire protection equipment was inspected regularly and kept in proper working order.

2. That first-aid fire protection equipment would be so located as to be easily noticed and readily accessible. A red background where all extinguishers are located would help to make them noticeable. This would help, however, only if these background areas were kept dusted and clearly painted. A fire extinguisher lying on the floor or behind a pile of bags is useless when needed in the few vital minutes when a fire first starts. After those first few minutes, it can do little good.

3. That where there is a hydrant and hose system, the necessary spanner wrenches, hydrant keys, nozzles, hose, washers, etc. would be in the hose houses and that the hose would have been tested against fire pump or tank pressure with adequate frequency so the hose would not burst when pump or tank pressure is applied to fight a fire.

4. That the high tank and/or reservoir would be adequately filled and the fire pump in starting condition.

Other Favorable By-Products

The prevention of poor housekeeping and the immediate elimination of poor housekeeping conditions not only assure a safer operation but improve worker morale with a consequent increase in worker efficiency. The effect of good housekeeping on worker morale cannot be measured, but nonethe-less, it is tangible and real.

I like the statement of a District Manager of the American Car & Foundry Company of Berwick, Pennsylvania:

"It is my opinion that general good housekeeping and appearances are an important factor in mental guidance for the worker. The appearance of the grounds and

(Continued on page 23)

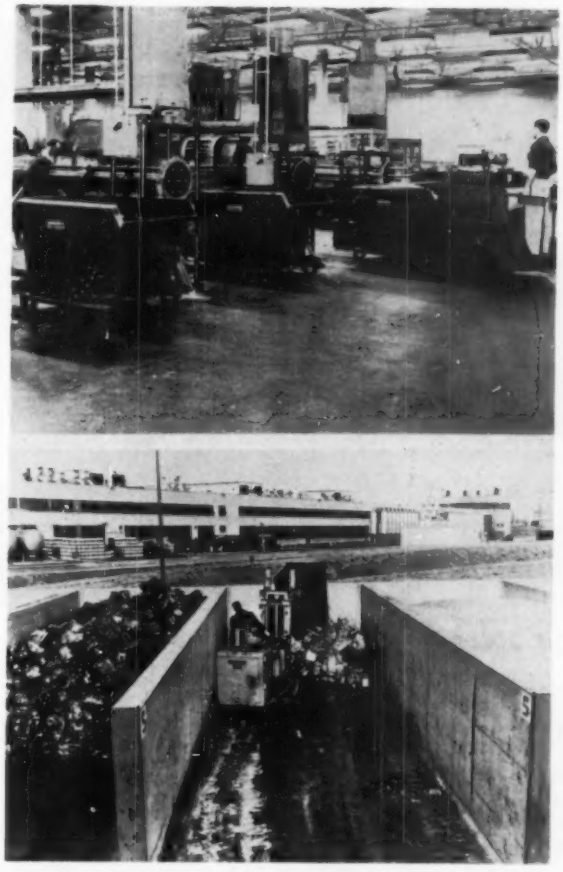


Fig. 1 (Top picture) shows cutting oil recovery room and Fig. 2 storage areas for various kinds of scrap.

Hoppers Simplify Scrap Collection

Self-dumping hoppers and radio-equipped platform trucks form an efficient system for fast scrap handling and improved segregation at Western Electric Company's Indianapolis plant, where most of the nation's telephone hand sets are made.

This plant produces more than 50 tons per day of steel, zinc, aluminum and brass scrap which must be segregated. Scrap is collected in hoppers which are designated for various kinds of scrap they are meant to handle.

Hoppers are strategically placed in metal working machine areas and, when full, are carried by mobile equipment to cutting oil recovery unit (Figure 1). Scrap is crushed to uniform size and dumped into centrifuge where cutting oil is extracted.

Fast, accurate unloading of scrap in crusher is accomplished by self-dumping action of hoppers. When lock handle on rear of hopper is released, hopper empties automatically, returning to upright position and locking.

Dry chips are poured from the centrifuge into hoppers and are then trucked to one of 11 storage bins, each holding a specific type of scrap (Figure 2). If gondola or box-car is on plant siding, chips are emptied directly from hoppers into rail cars.

Pictures by courtesy of Roura Iron Works, Inc.

Another Injury Checked

Because Safety Shoes Were Worn . . . .

The Golden Shoe Club Award was presented to Harold Sparaco of the B. F. Goodrich Footwear and Flooring Company, Watertown, Massachusetts. Sparaco, a stock clerk at the plant warehouse, received the award for wearing safety shoes which prevented a serious injury to his right foot. A four-wheel skid loaded with 2,025 lbs. of flooring tile rolled over the foot.

The Golden Shoe Club, a national safety organization, was organized for the purpose of bringing attention to the importance of wearing safety shoes on the job. Club membership is awarded to those whose wearing of safety shoes has prevented serious injuries. In the picture, William J. Dooling, Safety Supervisor (left), and John A. Reis, Supervisor of Finished Goods Warehouse (right), made the presentation to Sparaco.

Safety Program
(from page 9)

lon responsibility for safety was the keystone of the effort. A Divisional Foreman Safety Committee was established, making division foremen as responsible for safety as they are for quality, cost and production. The most important feature of the new committee approach is that members of the line organization from supervisor to superintendent are responsible to their direct superiors for results.

Establishment of this new program was considered so important that Goodyear President Russell DeYoung announced it himself at the company's annual safety awards dinner in February.

Concurrently the plant paper, "The Wingfoot Clan," tripled its efforts to keep safety a constant goal for every Goodyear employee.

One issue of the weekly enlisted the services of several employees to act out a number of safety hazards and the dire physical consequences of non-observance of safety rules and regulations.

The pictures were treated with broad humor, but their message was hard-hitting and unmistakable. Several of them are reproduced here.

In several other ways, the safety message was pounded home.

The result: from 15 accidents in January, the number dropped to two in February, one in March, and none in April.

"This only goes to show," says Manning, "that you cannot relax for a moment without the number of accidents rising. And," he adds pointedly, "with a hard-hitting program and a constant big effort on everyone's part, you can eliminate them entirely."

Safety Equipment Ass'n Annual Meeting

The Industrial Safety Equipment Association held its Annual Meeting in Greensboro, N. C., June 21–24 for business sessions, board and product meetings as well as social activities. Members who represent the leaders in the nationwide safety equipment industry elected the following Officers and Trustees:

President—

J. T. Monahan, American Optical Co., Southbridge, Mass.
(re-elected to serve a one-year term)

Vice President—

Fred Guilbert, Chicago Eye Shield Co., Chicago, Ill.
(to serve a one-year term)

Trustees—

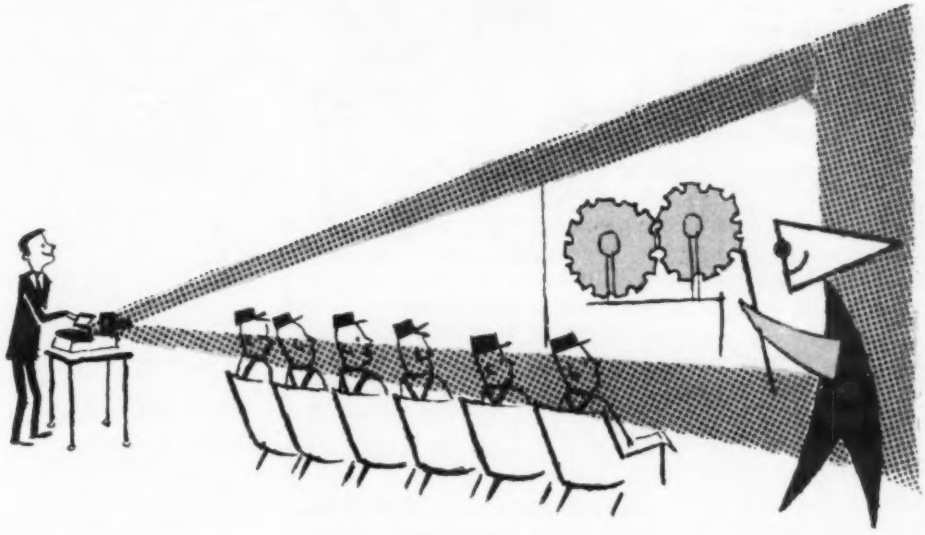
Draper Allen, Arcadia Mfg. Co., Birmingham, Mich.
Thomas Johnson, Welsh Mfg. Co., Providence, R. I.
(to serve a two-year term)

D. E. Houston, Safety First Supply Co., Pittsburgh, Pa.
Gordon St. Clair, Medical Supply Co., Rockford, Ill.
(carry-over Trustees to serve a one-year term)

F. R. Davis, Jr., Davis Emergency Equipment Co., Newark, N. J.
(Junior Past President to serve as Board member for another year)

The next Annual Meeting of the Association will be held at Del Monte Lodge, Pebble Beach, Calif., June 20–23, 1961.

How to Use



Filmstrips or Slides for Safety

20 BENEFITS FROM VISUAL AIDS

1. **Visual messages illustrate and clarify:**
   - * **non-verbal symbols and images**
   - * **complex relationships**
   - * **quantitative relationships**
   - * **abstract concepts**
   - * **spatial relationships**
   - * **specific details**
2. **They provoke and hold attention.**
3. **They bring expert sources to your audience.**
4. **They show inaccessible processes, materials, events, things, and changes in time, speed and space.**
5. **They promote efficiency in acquisition and retention of learning.**
6. **They facilitate changes in information, attitudes, behavior and moods.**
7. **They permit joint perception and can improve group relations.**
8. **They increase the prestige of the speaker.**
9. **They facilitate accuracy and standardization of the message intended.**
10. **They promote speaker's self-confidence.**
11. **They create emotional involvement.**
12. **They show size, color, shape, and texture.**
13. **They constitute a more universal language than words.**
14. **They provide objectivity to a delicate or controversial subject.**
15. **They allow the audience to view an object or process from a variety of reference points.**
16. **They can economize the effort of understanding.**
17. **They allow a variety of modes of presentation.**
18. **They reinforce verbal messages.**
19. **They promote security—a feeling that the message is true.**
20. **They are repeatable and durable.**

Filmstrips and slides are used extensively in safety training demonstrating accident prevention techniques and the need for using safety equipment. Where safety programs extend to off-the-job activities, the projection type of visual aid can also dramatize safety factors in the home, on the highway, and during recreational activities.

What benefits can you get from using filmstrips or slides for training personnel in accident prevention? The Graphics Institute points out three principal advantages for this type of presentation.

A. The Movie Atmosphere Appeals to Your Audience: When employees sit down to see a filmstrip or slide show, they will probably see a number of familiar elements: a projector, a screen and seats arranged for audience viewing. They recognize at once that they have come to see a film presentation of some sort—and you benefit from their lifetime of experience in movie going. Consciously or unconsciously, your audience expects to be entertained and, perhaps, enlightened. Thus, you start with an audience that is predisposed to give your message a favorable hearing.

B. The Medium Promotes Informal, Flexible Presentation: A filmstrip or slide show can be put on almost anywhere—from a theatre or meeting hall to a cafeteria or small office. It can be given in a light as well as dark room, and needs little more basic equipment than a projector and a source of electricity. Furthermore, the presentation can be tailored to your specific needs.

C. Ease of Showing, Storing, and Shipping: Other visual aids, such as flip-charts, flannel boards or exhibits, have specific uses for which their format is best; but the projection technique permits the use of graphic materials that are small, light-weight and easy to show, store and ship. They also stand up well to repeated showings.

In addition, the accompanying table lists twenty benefits of visual aids drawn up by a Visual Communications Conference sponsored by the Kellogg Foundation's National Project in Agricultural Communications. The group of psychologists, sociologists, communications specialists and practitioners in the field of design and graphics drew up a list of benefits from the use of visual presentations, particularly applicable to filmstrips and slides. Twenty of the highlights from this list could well apply to the industrial safety communications program.

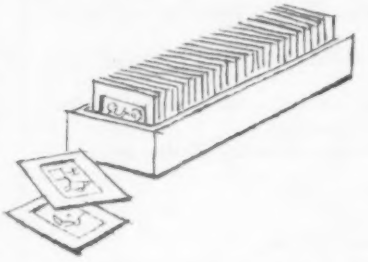
What Are Filmstrips & Slides?

FILMSTRIPS: A filmstrip is a series of drawings, still photographs, diagrams, charts or lettering on a strip of 35 mm. film. Perforated edges of the film fit over projector sprockets. When adjusted to project the first frame of the pictures on the screen, each succeeding image also will be in focus and in proper position on the screen. Wordage may be presented by a type-set series of titles which are on the pictorial frames or take up entire frames by themselves. The commentary may also be read from a script by a speaker. Many filmstrips are presented with sound—generally a phonograph record or tape made specifically for the purpose of accompanying the filmstrip. This type of filmstrip is widely known as a "sound slidefilm." There

are sound slidefilm projectors which transmit an inaudible signal from the record to the film projection apparatus. This signal automatically advances the filmstrip through the projector.

The average filmstrip ranges from 35 to 75 frames in length, with an average presentation time of from seven to ten seconds a frame. If the material to be presented requires less than 35 frames, it is probably better to use slides instead of filmstrips. Unless a filmstrip is of unusual interest, material of much over 100 frames tends to tire the audience.

Advantages of Filmstrips: Since all the frames are in sequence on one strip of film, they can never get out of order. They are also light, easily stored and shipped, and condense much information. Even a 100-frame filmstrip can be shipped in a small plastic container not over two inches in diameter. Multiple copies of a filmstrip are inexpensive to produce.



SLIDE SHOWS: A slide show is a series of slides based around a single topic or theme. The most popular type of slide today is made on 35 mm. film. When processed, the film is cut into individual pictures and placed in cardboard or glass mounts ready for projecting. These are called 2" x 2" slides since the mounts are 2" square. There are also larger slides, which are best adapted to projection in large auditoriums.

Slides, too, can be used to present drawings, still photographs, diagrams, charts or lettering.

Although slides are individually mounted, they can be projected in a steady sequence with some types of projection equipment. These have the slides prearranged in order in the magazine attached to the machine. An automatic mechanism places the slide in position for projection, and removes it when the projectionist is ready for the next picture.

Advantages of Slides: Slides are also light, easily stored and shipped —although not quite so simple to handle as a filmstrip. However, slides are more flexible in use than a filmstrip, since a slide sequence can easily be changed to fit local needs or to be brought up to date. This can be done by changing a few slides or rearranging their sequence. A change in a filmstrip generally requires reshooting and running prints of the whole filmstrip.

How do filmstrips and slides compare with motion pictures? All down the line sound slidefilms are less costly—to produce, to project, to ship, to reproduce in the form of additional prints. Depending of course on the subject matter, the filmstrips and slides can be equally effective and even more effective in some cases. They are also much easier and less expensive to change or up-date.

Projection Equipment: Buy, Rent, or What?

If you have no projection equipment for showing your completed filmstrip or slides (or a presentation you have borrowed or rented from another organization), what is the most economical method of acquiring the projection devices? There are three ways of getting the equipment and the most economical method will depend on individual circumstances:

Use Local Projection Equipment: If you are holding your meeting in a hall or room of some other local organization than your own, see if they have projection facilities. If

not, or if the meeting is to be on your own company's premises, try to borrow or rent projection equipment locally. It is estimated that 100,000 schools in the U. S. have their own filmstrip or slide show projectors. In addition, many thousands of clubs, organizations and businesses are equipped with suitable facilities.

Rent Projection Equipment: If your need is just for an occasional showing at widely scattered places throughout the country, more or less simultaneously, it would be a good idea to rent projection equipment. Cities and most large towns will have a shop where such equipment can be rented. Try looking in the telephone classified directory under "Photographic Equipment & Supplies" or "Motion Picture Machines."

Buy Projection Equipment: If you are planning to develop an active filmstrip or slide show program, then of course your best bet is to buy projection equipment. There are machines which will handle both film strips and slides with a high degree of automation. Others require more attention from the projectionist. In general, the more automated the machine, the higher the price.

When you purchase a machine, acquaint yourself with the operating manual. Knowing exactly how the machine runs can save you much embarrassment at the actual meeting. And when taking projection equipment out for a showing, remember to take along a spare projection bulb.

How to Make the Show a Success

Should you integrate any other material with your filmstrip or slide show? You certainly should. For the best results, work out an integrated program. In safety meetings, if the slides demonstrate *specific* safety rules or safe methods of working, then introduce the film with some more general remarks on this particular phase of accident prevention. But keep the introduction short and to the point.

If the subject matter of the slides is of a more *general* nature, then additional material from the

(Continued on page 22)

HOW TO MAKE YOUR OWN FILMSTRIP OR SLIDE SHOW

There are six steps in making these visual aids:

1. THE BASIC IDEA IS HAMMERED OUT

You and the film producer discuss the basic idea or theme. After a thorough orientation, the producer works up an outline of what should go into the script and submits it for your approval.

2. THE SCRIPT IS PREPARED

The producer now comes up with a typed manuscript giving a frame-by-frame sequence for your approval.

3. STORYBOARDS ARE CREATED

These are rough sketches of the artwork that will be seen in the presentation. They are arranged in sequence and have the appropriate verbal commentary from the script attached to each sketch. You again have an opportunity to make necessary changes.

4. THE ARTWORK IS EXECUTED

The producer's art staff executes the pictures on the basis of the rough sketches and your reactions and suggestions. If this is to be a silent filmstrip with captions, type matter is set by the producer. If photos are being used, they are sized, retouched if necessary, and prepared for integration into the film.

When the artwork has been finished, most producers give their clients a final chance to check it over. The producer may have to explain the problems of reproduction of colors in filmstrips and slides. Some colors do not reproduce well because of dye deficiencies in color film. Dark greens and dark blues tend to reproduce as black. Medium greens go toward a blue hue. Some of the darker reds become muddy; and the yellow-orange becomes a full orange shade.

5. ARTWORK GOES BEFORE THE CAMERA

For a filmstrip, the artwork is now photographed in sequence and a master color negative produced. From this negative a set of three prints of different densities is made. These prints are examined by the producer and client, and the one that seems to have the best color values is selected. The density of this print is matched when the client orders the number of prints he wants for distribution.

6. THE RECORDED OR SPOKEN COMMENTARY IS ARRANGED

If this is to be a sound slidefilm, the producer arranges for recording the sound. This recorded commentary can range from a simple, one-voice explanation to the use of several voices, dialogue, background music and sound effects. If the commentary is to be given live by a speaker accompanying the filmstrip or slides, copies of the script are printed for use by the speaker.

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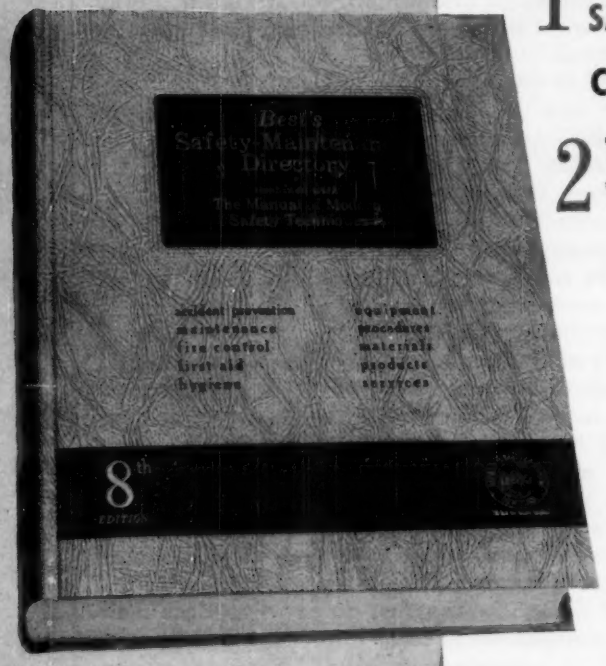

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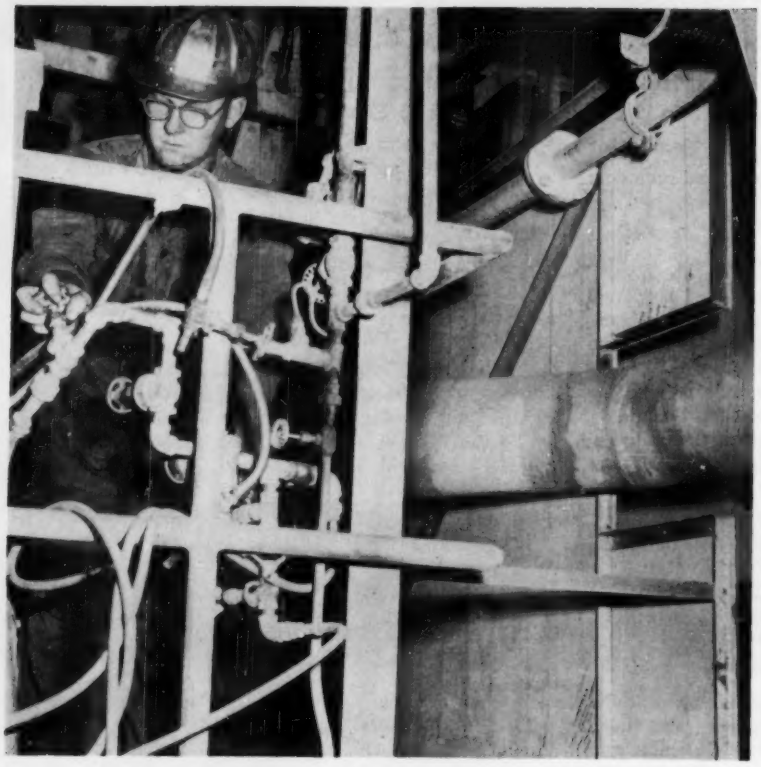
A SAFETY IDEA



Insulation for Hot Spots

Drying machine operators at a large chemical plant in southwestern United States are now easily and inexpensively protected from extreme heat, thanks to an insulating board which has its origin in South African asbestos mines.

The problem facing engineers was how to protect the workman operating controls at a distance of six feet from the main dryer. Rearrangement of machinery or controls would have been prohibitive and only a narrow space was available for the erection of a heat barrier.

A lightweight and completely incombustible building board was the protective material decided upon. This product, recently marketed here, has one-third the weight of quality cement asbestos boards and superior insulating value. It can be sawed, nailed, or fastened with screws as easily as wood. The product is composed entirely of inorganic material and therefore is resistant to fire, heat, rot, mold and vermin. Long fiber asbestos is bonded chemically with a special silica in a high pressure steam process. The resiliency, strength and length of the asbestos fibers in the material contribute to its lightness and exceptional workability.

Engineers at the chemical plant are particularly pleased that the board does not absorb moisture. High water content of the air from the drier has not affected the ability of the insulating board to resist heat, the company reports. In addition, to use in processes involving intense heat, it has a high dielectric strength that permits use as an electrical component and protective material.

Picture by courtesy of North American Asbestos Corp.

Use of Filmstrips

(from page 19)

speaker might well go into the specifics—preferably after the showing of the visual material. And no matter the type of subject covered, leave time for questions and answers.

Whether or not you have a captive audience, the success of your program can depend on how well you publicize it. Here's where the artwork or pictures for your filmstrip or slides can be additionally helpful. Your filmstrip producer should be able to prepare the following correlated items for publicizing your presentation:

1. Promotion Mailers and Posters: Using sections of your film art for illustration, you can work up at little cost provocative posters, handouts or even mailing pieces.

2. Meeting Guides and Manuals: If your presentation is going to be given in the field by someone who may be relatively untrained in filmstrip showings, it is a good idea to have a meeting guide or manual. It should include a complete plan for a showing, including information on how to run the projector, how to set up chairs, and some discussion topics to cover after the showing. The guide should also contain a complete script and a reproduction or description of the accompanying visual frame for each portion of the script—so the projectionist can familiarize himself with the sequence.

3. Take-Away Pieces: Your presentation artwork can form the basis for an attractive booklet containing the highlights of the show. A take-home piece gives the audience information in permanent form, reaches others on a pass-along basis, reinforces your message, and promotes further showings.

4. A Comprehensive Program: For fullest benefit, filmstrip or slide shows should be given at regular intervals, each one integrated into an over-all program. Once you have built up audience interest and projection and promotion techniques, regular releases of new film material will enable you to snowball your effect.

Pictures by courtesy of Graphics Institute.

Safe Housekeeping
(from page 15)

the internal factory area establish the frame of mind in which the workers approach their daily tasks. We believe that 'a good housekeeper is a good worker' and we can prove it."

There is also a personnel and public relations aspect to good housekeeping. The appearance of order and attractiveness within the plant and on the exterior will favorably impress employees, visitors and the local community.

From an address presented at the 1960 Virginia Safety Conference. Pictures by courtesy of Shell Oil Co. and Mine Safety Appliances Co.

Heat-Fighting Fabrics
(from page 11)

tional resistance to fabric breakdown caused by heat and wear. (See Figures 3 and 4.)

This new inner coating gives a new aluminized spun-rayon fabric, type 82 FE 89, doubled life over its predecessor, type 82. The fabric weighs 10 ounces a square yard, and withstands 26 pounds stress per square inch.

Type 75 was tested against its predecessor, type 71, by independent research laboratories. These tests indicated type 75 has a wear life expectancy three times greater than type 71 (and 71, in turn, has a wear life expectancy two and one-half times greater than plain asbestos).

The tests were performed on a Wyzenbeck wear-testing machine (CCC-T-191B method 5304). The machine was operated with #0 emery paper and two pounds of pressure. "Cycles" in the accompanying chart indicate the number of cycles required to destroy the sample material.

Cape sleeves and aprons of type 75 were field-tested in the scarfing yard of Lukens Steel Company, Coatesville, Pennsylvania. After four weeks of daily use "the tested garments showed greater wear resistance than all previously used safety garments" for this kind of hazard and were expected to remain serviceable for three to five weeks more.

While most industrial uses of aluminized fabric involve keeping heat out, Westinghouse Electric Corporation's steam division uses aluminized asbestos blankets to retain constant heat in large castings during welding. This is accomplished by covering castings with the aluminized surface face down. Welders, who wear protective hoods and gloves, kneel or sit safely on hot castings covered in this way.

Workers who are exposed to heat, dust and noxious fumes near precipitators in the manufacture of cement at Missouri Valley Portland Cement Company, St. Louis, wear complete suits of aluminized fabric (Figure 5), similar to those worn by refinery workers at Esso Bayway.

Aluminized fabrics have provided a measure of industrial safety that was not possible a few years ago. By-products of that effective protection are reduced costs and improved morale.

Pictures by courtesy of Minnesota Mining & Manufacturing Co.

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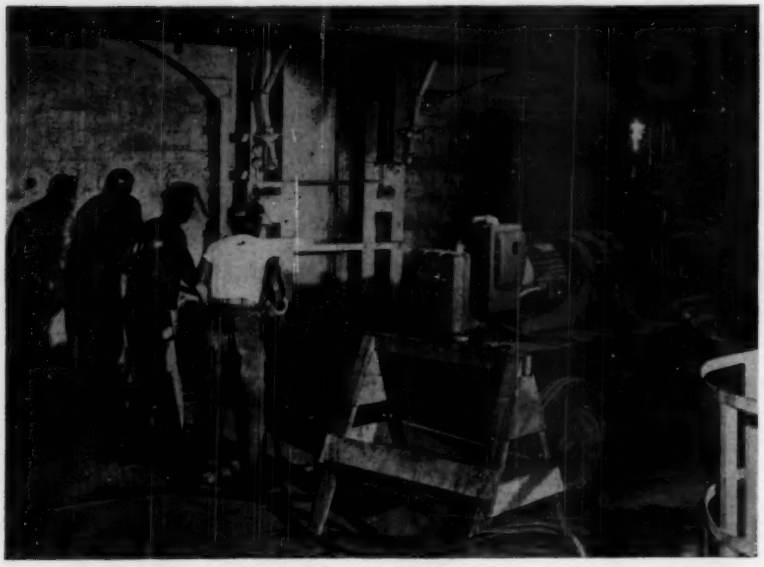

"Big Moe" on the job. The pressure water pumping rig utilizes a vertical triplex, single-acting plunger pump. Latter is connected to motor reducer.

High Pressure Water Speeds Furnace Cleaning

Until recently, Great Lakes Steel Corporation of Ecorse, Michigan, a division of National Steel Corporation, cleaned its open hearth furnace hot brickwork "checkers" with 100 PS IG air. Now they use high pressure water.

This high pressure water is supplied by a portable trailer-mounted pumping rig. "Big Moe," as the rig is called by Great Lakes Steel's open hearth maintenance foreman, Bob Rooker, consists of a plunger pump directly connected to a 40 HP motor reducer.

Manual Cleaning

At best, the air cleaning of the furnace "checkers" was only fair. A gradual build-up of foreign matter not removed by the air blast required a manual cleaning job on the "checkers" after approximately three months. Manual cleaning can only be accomplished with the furnace shut down.

When a furnace was shut down, it took about eight days to replace the roof refractory and manually chisel off the build-up on the "checkers."

Manual cleaning has practically been eliminated and down time at rebuild reduced substantially. Many times "checkers" are only opened for inspection.

280 RPM Operation

"Big Mo's" pump has a capacity of 57 GPM and operates at 280 RPM. Water is supplied from the mill water supply lines to the pump, which discharges its full capacity to a multi-orifice cleaning nozzle at 970 PS IG through a 25-foot-long lance.

The lance is inserted into the checker banks where the high pressure water spray pattern from the nozzle removes the accumulated deposits of iron ore, slag dust, carbon and other foreign matter from the "checkers."

Bob Rooker reports that both checker banks for one open hearth furnace are now cleaned in one eight-hour turn and believes his crew will eventually be able to take care of two furnaces a day.

Picture by courtesy of Worthington Corp.

First Quarter Injuries Rise in Typical Seasonal Pattern

In typical seasonal fashion, the all-manufacturing work-injury frequency rate rose sharply in January and February, 1960, and shaded off slightly in March, according to preliminary reports compiled by the U. S. Department of Labor's Bureau of Labor Statistics. The average for the three months was, however, no higher than that for the preceding quarter.

Starting from its all-time low—9.9 disabling injuries per million employee-hours worked in December—the rate rose 7 percent to 10.6 in January, rose again to 11.4 in February, and held at 11.3 in March, 14 percent above the December level. The three-month average was 11.1, identical with that for the last quarter of 1959 and a fraction below the first quarter 1959 average of 11.2.

In comparison with all other years this was an excellent first-quarter record. Only in 1958 was the average frequency rate for the first-quarter significantly lower.

The Higher Rates

Among the 136 individual manufacturing industries for which frequency rates were available, only 4 had rates 5 points or more higher in the first quarter of 1960. These were miscellaneous wood products, wooden containers, metal household furniture, and electrical products (not elsewhere classified). Increases of 1 to 5 points were recorded for 49 other industries. Rates for 55 industries showed little change, but those for 28 decreased 1 full point or more. The rates for metal doors, sash, frame, and trim industry and for poultry dressing and packing fell by more than 5 points.

Outstandingly low rates were recorded in the first quarter of 1960 for the following industries: Synthetic rubber—0.8; radio tubes—1.7; electrical equipment for vehicles—2.1; aircraft—2.2; explosives—2.6; miscellaneous communication equipment—2.6; scientific instruments—2.7; and electric lamps (bulbs)—2.9.

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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HEART CONDITION—Strain and Exertion—Causal Connection

Claimant worked for the employer delivering ice by truck and occasionally worked at the ice house itself. On the morning in question, the claimant went to work in the ice house where he had been working for the preceding three weeks. He began loading route trucks with bags of crushed ice, each weighing 50 pounds. He stated that after working 15 or 20 minutes, he was lifting two of the 50-pound bags at the same time, which he very seldom did, when he experienced a pain in his shoulder and chest. The pain increased in intensity and claimant left for home. Medical examination resulted in a diagnosis of coronary occlusion and myocardial infarction. Claimant was totally disabled from November 7, 1956, until May 22, 1957. Two doctors testified for claimant as to causal relationship and two doctors testified for the employer as to no causal relationship. The board found causal relationship between the condition and the work being performed at the time the attack occurred. There is substantial medical evidence here relating to the occlusion and infarction to the work being performed at the time it occurred. It is further evident that exertion being expended by claimant in lifting two 50-pound bags of ice was greater than that of the ordinary wear and tear of life and that this was hard physical work, regardless of whether or not it was harder than the work which the claimant usually performed. Decision affirmed.

Wagner vs. City Products Corporation; New York Supreme Court, Appellate Division, Third Department, No. 1771. May 5, 1960.

COURSE OF EMPLOYMENT—Fall in Employer's Parking Lot on Way to Work

Plaintiff seeks to recover workmen's compensation by reason of her injuries suffered when she tripped and fell in the parking lot owned and operated by her employer. The trial court sustained the employer's objection that the petition did not state a cause of action and that the injuries were not sustained in the course of employment. While plaintiff was upon property owned and operated by

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her employer, she had not arrived at her place of employment on the premises of the employer ready to begin her activities in her employers work. The petition does not allege that the manner of travel or the way of travel was within the contemplation of the contract of employment, the employer having no interest in whether the employee came in an automobile or used public transportation or came on foot. The petition fails to show that employees were required to use this parking lot, but simply shows that if any of them chose to use it, there was a definite space assigned to each individual. The injury occurred in the morning while plaintiff, after alighting from a car driven by a fellow employee, was walking toward the building in which she worked. Judgment affirmed.

Odle vs. Publix Shirt Corporation; Tennessee Supreme Court. May 4, 1960.

CARCINOMA OF THE BREAST—Conflicting Medical Testimony—Causal Relationship

On August 7, 1953, decedent fell and struck her left breast. As a result of changes in the breast, decedent had surgery performed on March 4, 1954, returned to work in July, and worked until August 30, 1954. On September 30, 1954, decedent died, the cause thereof being carcinoma of the breast. The medical testimony was conflicting as to whether or not the injury caused the carcinoma or aggravated or had no effect on a pre-existing condition. Awards for aggravation of pre-existing carcinoma have been affirmed. The conflicting medical testimony in this case presented a question of fact for the board. Its weight was for the board to evaluate and the court cannot justly say on this record that the board erred as a matter of law. Award of death benefits affirmed.

Smith vs. Durham Aircraft Service, Inc.; New York Supreme Court, Appellate Division, Third Department, No. 1895. May 5, 1960.

Hazard Awareness Sparks Program

A "hazard awareness" safety program—in which employees pin point for themselves unsafe conditions and then work to eliminate them—can cut accidents as much as 30 percent, Ernest Schleusener, vice president, Bantam Mfg. Company, Athol, Mass., reports in the June issue of "Supervisory Management." The distinguishing feature of this program is that the hazard is spotlighted **before** it causes an accident. And, the responsibility for locating potential hazards rests not only with the supervisor but with everyone in every department. The plan is designed to create lasting interest—not just passing enthusiasm—for the safety program.

The two main ways of keeping people interested—reminding them and involving them—are used in the hazard awareness program. It is centered around a reminder that is always in sight—a chart posted in each work area pointing out potential hazards peculiar to that area. And this chart, Mr. Schleusener emphasizes, is made up "not by management or the safety engineer, but by the employees themselves."

A hazard awareness chart concentrates on specifics; the risks it points out must mean something to each employee. Once the hazards have been pinpointed—by means of discussion among employees in the department—the charts are drawn. Each chart should be divided in two sections, Mr. Schleusener advises, with major hazards at the top and minor hazards at the bottom. Major hazards are those that would cause lost time in case of an accident. Minor hazards are those that would cause discomfort, but no lost time, if an accident occurred.

In addition to the charts for each employee, others should point up hazards common to all members of a department. These should be made after consultation with everyone concerned. Special charts also can be made for visitors to an area; these charts would necessarily be larger than the others since they must be visible immediately from a greater distance.

Mr. Schleusener stresses the importance of keeping the hazard awareness program dynamic. One way to do this is to take down the chart as soon as an accident occurs, and to have the group analyze what went wrong. If several accidents occur in one area, reprint the chart on red paper so that it stands out, he suggests. Likewise, in areas where there have been no accidents for a long time, it is a good idea to replace the chart with a green one. "This gives employees the incentive of recognition for a good record, and at the same time varies the chart."

Pointing out the hazards is one thing, says Mr. Schleusener, and eliminating them another. Here again employees can contribute suggestions for elimination that management would never think of. Four ways to spur such suggestions from employees are the following:

1. Study red chart areas;

2. Study all charts to see how many hazards can be eliminated;

3. Appoint a group to study all charts to recommend what hazards can be eliminated, how it should be done, and how much it would cost;

4. Periodically request a small amount of money to help eliminate hazards if high frequency or severity is likely.

While the hazard awareness program is designed primarily to prevent accidents it can save a company a great deal of money, Mr. Schleusener reports. This is so because:

1. When accidents are cut, compensation costs are saved

2. With fewer accidents, productivity can continue without costly interruptions

3. Money that might be spent unnecessarily to eliminate hazards can be saved when the people on the job propose simpler, better solutions

4. When people are unsure of what the hazards are, they may work overcautiously, and therefore, more slowly. When they know what the hazards are and have taken steps to avoid them, they can work at normal speed

5. When employees administer their own programs, they save the supervisor's time and free him for more productive work.

THE FIRE FRONT

Publicity Is Key To Fire Prevention

The ability and willingness to enforce a strong fire prevention code coupled with good public relations is the key to community-wide fire-safety consciousness, according to F. S. Staunton, chief fire prevention officer of the Hamilton, Ontario, Fire Department. He told a National Fire Protection Association audience at its annual meeting that a successful program starts with a thorough investigation of all fire deaths and court action when necessary on infringements of municipal codes.

If you add to this a broad effort to educate children in fire safety, plus plenty of good publicity about all phases of fire prevention, he said, "you will not have to worry as to whether your people are fire conscious."

"Fire departments which have organized and carried out constant year-round educational campaigns have invariably seen fire losses in their communities go down and their standing in the community go up," commented Carl P. Johnson, chief of the Portland, Maine, Fire Department.

Chief Johnson emphasized the value of an intensive 52-weeks-a-year inspection program carried on by men who know how to "sell fire safety."

Speaking at the same session, Albert Redding, who is Captain in charge of the Bureau of Fire Prevention of the West Milwaukee, Wisconsin, Fire Department, told the group of his department's program to reach the child "from the moment of birth" with fire protection and fire safety education, first through the parents and then through the schools.

"Observance of activity weeks serves to stimulate special activity and interest, but it can only hope to supplement—never take the place of—fire safety training integrated into the regular school program," Redding said.

George F. Kennedy, fire marshal of Hartford, Connecticut, described that city's successes in teaching fire safety to home owners by means of an all-out inspection program.

A Fire Prevention Council composed of citizens from every interested group in the city has been the mouthpiece of Louisville, Kentucky, for spreading the gospel of fire prevention.

May Losses Rise

Estimated fire losses in the United States during May amounted to $86,940,000, the National Board of Fire Underwriters has reported. According to Lewis A. Vincent, NBFU's general manager, this loss represents an increase of 6.5 percent over losses of $81,597,000 reported for May 1959, and a decrease of 11.4 percent from losses of $98,106,000 for last April.

Losses for the first five months of 1960 now total $491,142,000, an increase of 1.7 percent over the first five months of 1959, when they amounted to $482,999,000. These estimated losses include an allowance for uninsured and unreported losses.

Captain Merle Brown, acting fire marshal, described how his Council, divided into 16 working committees, seeks the most important objective in fire protection—fire prevention.

"Fire fighting—because it requires positive and dramatic action—has had a much greater appeal for people than have preventive measures which involve restrictions and interference with what are termed individual rights. Thus the need for fire prevention education is great," Brown stated.

"There is no community too large or too small to organize a fire prevention council," Brown said. "You will have no trouble getting sufficient members for a successful organization if the members are allowed to really work."

He attributed the recent marked decrease in number of dwelling fires in Louisville directly to the thorough community organization.

"The fire department could not have done it alone," he said.

Fire Pumpers

As a public service to users and manufacturers of fire apparatus, and fire insurance rating organizations, the National Board of Fire Underwriters has for many years listed fire apparatus as capable of discharging specified quantities of water at specified net pump pressures. This service, made possible only through the cooperation of all parties concerned, has materially assisted in the maintenance of high standards of performance throughout the industry. The procedure, originally based exclusively on a 12-hour test, has been continuously expanded and modified to keep pace with the growth of the industry and increasing dependability of apparatus components.

Many cities and organizations, when purchasing pumpers, specify that they must be of a model listed by the National Board of Fire Underwriters as assurance that the basic design of the model to be purchased will be suitable for proper pumping performance. Many fire insurance rating organizations require that a pumper be of a listed model before credit is given in grading the fire defenses of the city or town.

The listing is concerned only with the pumping performance of a vehicle; road performance and details of chasis or other components are not considered except insofar as they may affect the pumping performance. Therefore,

(Continued on page 33)

Extinguishing Agents for Metals and Special

by EDMUND D. ZERATSKY
Ansul Chemical Company
Marinette, Wisconsin

The ever increasing use of combustible metals and special hazardous chemicals has led to the development of many dry powder and dry chemical extinguishing agents.

First, it may be well to explain the difference between a "dry powder" and a "dry chemical." The term "dry powder" applies to an extinguishing agent which is suitable for use on combustible metals. The term "dry chemical" applies to an extinguishing agent which is suitable for use on flammable liquids and electrical fires. A dry chemical can in some cases be used on a combustible metal fire, but a dry powder is generally not used on flammable liquids.

Dry Powders

Since it is not practical to try to discuss all of the dry powders which are available for use on combustible metals, the discussion is limited to those which are recognized by the major approval agencies.

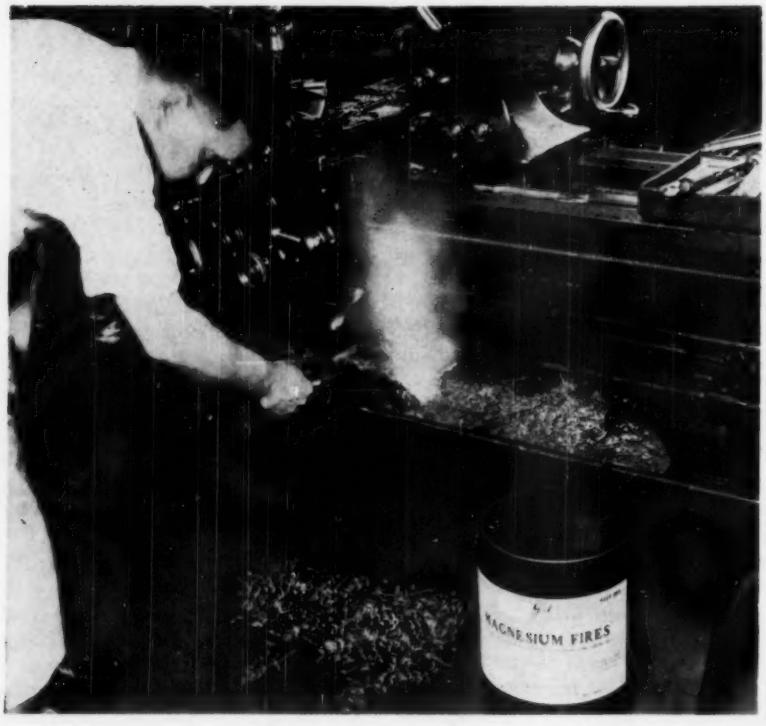

Fig. 1. This photo shows G-1 powder being applied to fire in magnesium chips.

G-1 and Met-L-X are the two powdered agents presently approved for use on combustible metals.*

G-1 is the oldest approved dry powder. It is applied to a fire with a shovel or hand scoop, and it cannot be discharged from fire extinguishers. Met-L-X is the first dry powder approved for use in extinguishers.

G-1 is composed of graded granular graphite to which is added phosphorus-containing compounds to improve its fire extinguishing effectiveness. Its composition is such that it can be stored for long periods of time in open containers without deterioration or caking.

When G-1 is applied to a metal fire, the heat of the fire causes the phosphorus compounds to generate vapors which blanket the fire and prevent air from reaching the burning metal. The graphite, being a

FIRE PROTECTION SERVICE

(FAR LEFT) Fig. 2. In test of Met-L-X control of magnesium fire is practically established after partial application.

(LEFT) Fig. 3. Test station technician applies Met-L-X to a magnesium fire during course of an extinguisher test.

(BELOW) Fig. 4. Picture below shows magnesium fire being extinguished with the application of an ABC AllClass unit.

Combustible Chemicals

good conductor of heat, cools the metal to below the ignition point. (See Figure 1.)

Met-L-X is a dry powder with particle size controlled for optimum extinguishing effectiveness. It is composed of a sodium chloride base with additives to render it free flowing and cause heat caking. Among the additives are tricalcium phosphate to improve the flow characteristics and metal stearates for water repellency. A thermoplastic material is added to bind the sodium chloride particles into a solid mass under fire conditions.

Met-L-X is stored in sealed containers or extinguishers and is not subject to decomposition or change in properties. Periodic replacement of extinguisher charges is not necessary to maintain extinguishing effectiveness. Met-L-X extinguishers range in capacity from 30 pounds for the smallest hand portable extinguisher to 2000 pounds for the largest single stationary system or piped system in use at present.

The technique used to extinguish a metal fire with Met-L-X is to

• **Editor's Note:** *Subsequent to the preparation of this article, Underwriters' Laboratories have released a report on a major new development in the fire extinguisher industry, the first fire extinguisher listed by U.L. for Class A, B, C and magnesium fires. This extinguisher utilizes still another powdered agent approved for combustible metal fires. Presently available in two sizes of hand extinguisher, this ABC AllClass powder forms an intumescent coating immediately upon contact with fire. This chemical change from a powder to an insulating coating absorbs heat, giving a cooling effect and smothering the fire.*

U.L. approves the powder at the ratio of four pounds of powder per one pound of magnesium. Potassium and sodium fires have not as yet been tested with the new extinguishing chemical in this country; but the powder's West German counterpart is approved by West German authorities for potassium and sodium fires as well as magnesium.

open the nozzle of the extinguisher fully and apply a thin layer of agent over the burning mass from a safe distance. Once control is established the nozzle valve is used to throttle the stream to produce a soft heavy flow. The metal can then be completely and safely covered from close range with a heavy layer. (See Figure 2.) The heat of the fire causes the Met-L-X to cake, forming a crust which excludes air and results in extinguishment. (Figure 3.)

Both G-1 and Met-L-X possess chemical properties which are desirable in extinguishing agents for metal fires. They are non-combustible and secondary fires do not result from their application to a burning metal. There is no known health hazard resulting from the use of these two agents. However, the fumes from burning metals should be avoided. Neither agent is highly reactive with burning metals. Their use will not increase the intensity of a fire even if applied in quantities insufficient to achieve complete extinguishment.

The extinguishing effectiveness of both agents on a given metal will depend on the physical form and quantity of the metal involved and on ambient conditions. The amount of agent recommended for a given hazard has been established by the major approval agencies.

Magnesium: Fires in dry or oily magnesium chips, turnings or castings can be completely extinguished with either agent. The ability of Met-L-X to cling to vertical surfaces makes it especially suitable for magnesium casting fires because it is not necessary to bury a casting completely.

Uranium: The fire hazard of uranium is similar to, but more severe than, magnesium. Successful use of both agents has been reported.

Titanium: Fire tests with titanium turnings indicate that pound for pound G-1 is more effective than Met-L-X. This is true whether the turnings are dry or oily. The intense heat of such fires melts the Met-L-X crust and allows air to contact the burning metal. Continued application of Met-L-X to the hot spot is required for complete extinguishment.

Zirconium: Fires involving zirconium chips and turnings, coated with an oil-water coolant, are completely extinguished by either agent. Fires involving moist zirconium chips and turnings are only controlled.

Sodium: Years of practical experience have shown that sodium in depth and sodium spill fires are easily extinguished with either agent. It has been found that sodium sprayed or spilled on vertical surfaces can be extinguished by Met-L-X because of its ability to adhere to the molten sodium.

Potassium: Potassium and sodium-potassium alloy spill fires can be readily extinguished with either agent. Fires in depth present a more difficult problem. Because the specific gravity of these liquid metals is less than that of G-1 or Met-L-X, the powders tend to sink and re-expose the metal to air. If a perforated plate is located near the liquid metal surface, it supports the crust formed by Met-L-X and the fire is extinguished. Although tests have not been run with G-1 using perforated plates, it is probable that the results would be the same.

Lithium: Met-L-X is not recommended for lithium fires in depth because it sinks into the molten metal and its sodium chloride base reacts to form lithium chloride and sodium. However, if the application of Met-L-X is continued until more sodium than lithium is present, the resulting sodium fire is easily extinguished. Therefore, Met-L-X is satisfactory for the extinguishment of lithium spill fires.

G-1 is suitable for the extinguishment of lithium spill fires and fires in depth.

Factors in Selection

Dry powders have a definite place in the protection of combustible metals but all have certain limitations. The metal, the quantity, the physical form, and the nature of the hazard, must all be considered when selecting the proper dry powder and the method af application.

Outside the field of combustible metals, pyrophoric liquids are now presenting a new fire hazard problem. These liquids ignite spontaneously and the resulting fires can be extinguished, in some cases, only by agents that do not contain water.

An example of a pyrophoric liquid presently existing as a special hazard in industry and elsewhere is triethylaluminum. Producers of this material sought methods of handling fires resulting from spills.

Preliminary small scale fire tests in triethylaluminum were conducted to evaluate the effectiveness of various extinguishing agents. Water and foams were found unsuitable because of the violent water-aluminum alkyl reaction. Carbon tetrachloride was ineffective. Carbon dioxide extinguished pan fires, but was ineffective on spill fires. Dry chemical and chlorobromomethane extinguished both types of fires, but in almost all cases reignition occurred after extinguishment. When spills were made over beds of adsorbents, the triethylaluminum burned less violently, was more easily extinguished, and showed less tendency to reignite.

Special Chemical Developed

The information obtained in these preliminary tests led to the use of an existing dry powder and the development of a special dry chemical for this unusual hazard.

The existing dry powder which was found to be suitable is composed of a graphitic adsorbent material processed to be free flowing so that it can be discharged from an extinguisher.

When this dry powder is applied to a triethylaluminum fire, it extinguishes only by adsorption of this liquid. Its initial application has no effect on the extinguishment of flame. It must be applied to the fires until a sufficient quantity is added to completely adsorb all of the triethylaluminum involved. Fire tests involving 10 pounds (approximately 1.5 gallons) in depth or in spills showed that 7 pounds of powder is required for each pound of triethylaluminum.

The special dry chemical developed for use on triethylaluminum fires is a mixture of a bicarbonate base dry chemical and an activated adsorbent. Its flow characteristics are such that it can be discharged effectively from ordinary dry chemical extinguishers. The extinguish-

(Continued on page 32)

Inexpensive Smoke Barriers Save Precious Lives

Fig. 1. Typical smoke barrier installed at far end of corridor to prevent smoke in the stairwells from entering corridor in event of fire.

Installation of fire-retardant smoke barriers on open stairwells, especially in older buildings, can bring the precious element of more time for evacuating personnel in the event of fire. For example, in 67 of Philadelphia's public schools, toxic smoke and gases are isolated from the school corridors by barriers on all double stairwells so as to minimize potential panic conditions and prevent dangerous smoke and gas inhalation. The combination of quarter-inch plywood and fire-retardant paint used in the Philadelphia barriers, therefore, provides ample time for children to be calmly and safely led out through other exits, and the low cost of the installation makes it practical for general use.

A typical installation of smoke barriers, made last fall at the Fitler Elementary School in North Philadelphia, is shown in the photographs. Like many older, multistory school buildings, the upper two stories of the Fitler School consist of long corridors bordered on one side by school rooms and at the ends by double stairwells (Figure 1). As shown in Figure 2, the smoke barriers are installed completely across the ends of the corridors and are equipped with double swinging doors. The barriers isolate each floor from smoke that is spreading either up or down from floor to floor. For example, a fire occurring on the third floor would drive smoke down the stairwells and could cause smoke hazard conditions in the corridor of the second floor. The smoke barriers at both ends of the second floor corridor would prevent such a condition from developing. As indicated by the "Fire Exit" sign and arrow above the doors on the second floor in Figure 1, an alternate evacuation route (to the right in this case) is provided. In Fig. 3, the smoke barriers on both the second and third floors of the Fitler School are seen from a landing.

Although a smoke barrier must be impervious to heat or flame developing in the stairwell, such a structure can be built, as in Philadelphia, without heavy expenditures for materials and labor. The low-cost quarter-inch plywood panels, themselves highly combustible, could be used because they were coated on both sides with fire-retardant paint. In Figure 2, a finish coat of fire-retardant paint is being brushed over a primer coat of paint on a plywood panel on the third floor of the Fitler School. The final coat provides a semi-gloss finish which assures an easily washable, stain-resistant surface to withstand the continuous daily traffic of children in and out of the school. Since they are also a part of the

Fig. 2. Intumescent fire-retardant paint being applied over combustible plywood by brush is decorative and fire safe.

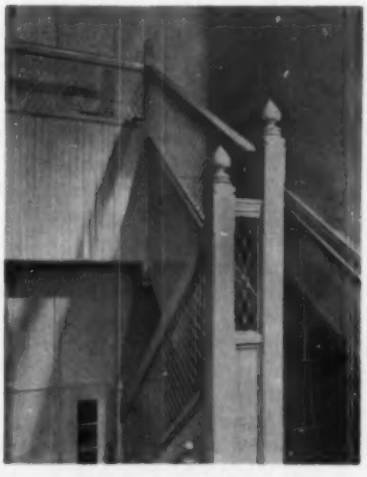

Fig. 3. View from landing between 2nd and 3rd floors shows smoke barriers on both levels. Stairs are not fire exits.

barrier, all the double doors are painted with fire-retardant paint.

As is evident in Figure 2, the fire-retardant paint is applied in the same manner and serves the same decorative purpose as conventional paints. If exposed to a heat or flame temperature of 300° F. or above, however, the intumescent paint on the smoke barriers will swell into a black, spongy cellular mat about ¾ in. thick. The spongy mat will only char at the point where the heat or flame accompanying the smoke is applied and will not support the spread of flame or heat along its surface. The thousands of minute air cavities in the mat will form effective heat insulation so that the temperature of the plywood itself will be much lower than that of the exposed surface of the mat. In addition, a non-combustible gas blanket will be formed by the chemical changes which produce the cellular mat. Therefore, the plywood smoke barriers will continue to stand and negligible smoke will enter the corridors, whatever the intensity of the fire in the stairwell. Following a fire, the charred intumescent paint may simply be scraped off, the surface cleaned, and new paint applied.

Flame Spread Factor

The fire-retarding quality of building materials or fire-protective paint like that applied on the smoke barriers is usually given in terms of "flame spread factor," a standard test figure developed by the nationally known Underwriters' Laboratories. Materials with flame spread ratings from 0 to 25 are considered "non-combustible," while materials with ratings above 70 are classified as "combustible," and above 100 as "fully combustible." Engineers in the School District of Philadelphia required a maximum flame spread rating of only 15 for all barrier surfaces as covered with fire-retardant paint. Application engineers of a U.L.-listed paint were able to recommend, on the basis of thorough Underwriters' Laboratories tests, that the required flame spread rating could be achieved with a paint coverage of 150 square feet to the gallon.

Pictures by courtesy of Albi Manufacturing Co.

"Whenever you're ready, Madame Curie—I could use a hand here!"

Ammonium Nitrate Fires

How ammonium nitrate behaves under fire conditions is covered in a new article published by the National Fire Protection Association. With millions of tons of this chemical being used annually, precautions necessary for safe handling and storage are of importance to warehousemen, transporters and users. Fire and explosion hazards are of special concern to firefighters.

According to Chester I. Babcock, NFPA Fire Record Department manager writing in the Association's Quarterly magazine, one frequent error is to confuse pure and fertilizer grades of ammonium nitrate with blasting agents, which are a mixture of ammonium nitrate and other materials. The latter are much more explosion-prone.

The article cites tests which indicate that both high pressures and high temperatures are required before ammonium nitrate will explode under fire conditions. Since high pressure conditions are seldom present in transporting or storing the chemical, except in a ship's hold, there has never been a substantiated report of an ammonium nitrate explosion during a fire in a building, truck or railroad boxcar.

Both recommended firefighting procedures and storage methods are detailed in the article. Reprints of the article, "Ammonium Nitrate—Behavior in Fires," are available (25 cents each) from the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass.

Extinguishing Agents

(from page 30)

ing action of this special dry chemical differs from that of the graphite base dry powder in that the initial application extinguishes the flame. The continued application adsorbs the remaining fuel and prevents reignition.

This special dry chemical reacts slightly with the triethylaluminum during application but this reaction does not hinder the extinguishment. Eight pounds of this agent are required for each pound of fuel when in depth, and 10 pounds of agent per pound of fuel for spill fires.

Why More of Special Chemical Required

Faster control of the fires is achieved with the special dry chemical than with the dry powder because of its flame extinguishing action. A considerable amount of dry chemical is carried away by the updraft of the fire during the initial flame extinguishing phase which accounts for the greater amount of this dry chemical required for complete extinguishment.

After extinguishment by either agent, the mixture of agent and fuel must be disposed of. The best method is to transfer the mixture to a dry metal container, applying additional agent if reignition occurs during transfer.

Summary

The existence of combustible metals has been known for years. Only when these metals were used in large industrial quantities did the problem of fire extinguishment become important. Dry powders were developed to answer this problem. In the same way when metal alkyls were known only in the laboratory, the fire extinguishment problem was minor. When their use increased, the Koppers Company, Ethyl Corporation, and Stauffer Chemical Company foresaw the problem, requested tests, and as a result special extinguishing agents are available.

From an address presented at the 1960 annual meeting of the National Fire Protection Association. Picture credits: Fig. 1, Fyr-Fyter Co.; Figs. 2 & 3, Ansul Chemical Co.; Fig. 4, Alim Corp.

the need for listing is based on the variation of one or more of three items: **the engine, the pump, and the gear ratio or other means of power transmission between them.** However, changes on listed models, such as the addition of one or more pump stages to produce pressures of more than 250 psi, a variation in brake horsepower due to minor engine modifications, or a reduction in gear ratio, will not necessitate a new listing.

Pumper Listings

There are two methods of determining eligibility for listing of pumpers. One is based on a 6-hour test at which time the pump is operated at draft, at rated capacity with a net pump pressure of 150 psi for 3 hours, at 70 percent of rated capacity with a net pump pressure of 200 psi for 2 hours, and at 50 percent of rated capacity with a net pump pressure of 250 psi for 1 hour. These tests are witnessed by an engineer of the National Board of Fire Underwriters or a fire insurance rating organization or bureau. This method is required for listings from new manufacturers and may be required for assemblies having aforementioned variations from previously listed units.

Issued to Manufacturers

The other, known as a Performance Listing, is issued only to manufacturers who are well established and have been previously issued a number of listings based on the witnessing of a listing test. Consideration is given to the data submitted by the manufacturer and to the variations of this model from previously listed models to determine that there is reasonable assurance that the engine has adequate power, that the gear ratio between engine and pump is suitable, and that the pumper may be expected to function satisfactorily in other respects. Performance listings are issued with the understanding that they may be withdrawn if justified by the failure of a pumper to pass a 3-hour acceptance test.

When a listing is given, Form E-126, signed by an authorized official of the National Board of Fire Underwriters, is issued to the manufacturer. This form lists the essential data of the engine and pump, the gear ratio between them, and and the results of either the 6-hour test or, if a performance listing, the 4-hour factory run-in and performance test. A pumper should not be considered as listed unless the manufacturer furnishes a photostatic copy of a duly signed Form E-126 describing an assembly of essentially identical motor, pump, and gear ratio. All fire insurance rating organizations are notified periodically of listings issued. The issuance of Form E-126 and listing of the apparatus do not imply that features other than the delivery capacity of the apparatus at or near sea level are in conformance with NBFU No. 19, Suggested Specifications for Motor Fire Apparatus, adopted jointly by the National Board of Fire Underwriters, International Association of Fire Chiefs, and the National Fire Protection Association.

Every pumper on delivery should be given a 3-hour acceptance test as described in the booklet Fire Department Pumper Tests and Fire Stream Tables, and the fire insurance rating organization having jurisdiction should be notified. Some rating organizations require that their representatives be present to witness the test. In any event, a copy of the results of such tests should be sent to the rating organization. The 3-hour acceptance test should be run in the locality where the pumper will be used to insure satisfactory performance where higher altitudes or higher lifts prevail.

Notification to Board

If a listed pumper should fail to pass an acceptance test, the National Board of Fire Underwriters should be notified and the reason given, if known.

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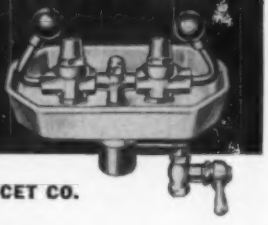

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If the Refrigeration and Air Conditioning unit chief of the Civil Engineering division at Kelly AFB had a dollar for every man-hour the organization has worked without a disabling accident, he would be a millionaire.

The 21 employees in the group have worked nearly 12 years without a single disabling accident. James W. Reicherzer, unit foreman, feels the fine record has been established by a special device for handling heavy compressors, use of protective equipment, heavy indoctrination in safe working methods, the full support of management and job planning to prevent accidents.

Cicero Velasquez, safety representative, has been credited with doing an outstanding job in keeping employees informed on safety measures.

• • •

Winning of the C-I-L Prize, highest award under the company's no-accident record plan, was recently achieved by the Copper Cliff works of Canadian Industries Limited. The safety record represents more than six and one-half years, 2,389 calender days or 1,081,000 manhours without a disabling accident. Last injury at the plant was on November 24, 1953. One hundred employees were presented with individual awards at end of June. C-I-L's Copper Cliff works manufactures sulphuric acid and liquid sulphur dioxide.

• • •

The Chevrolet National Parts Distribution Center at Otterburn, Mich., has chalked up a new world record in safety for the storage and warehousing field. Announcement of the all-time mark was made by Howard Pyle, president of the National Safety Council.

The Otterburn warehouse, he said, amassed a consecutive string of 5,541,673 man-hours without a disabling accident. The record covered a year and a day, with the period ending on January 5 of this year. It tops by more than 2 million man-hours the previous record in the field. The unit will receive the Council's Award of Honor.

• • •

Armstrong Cork Company President C. J. Backstrand recently presented a National Safety Council Award of Merit to M. D. Ford, Manager of the Company's Floor Plant in Lancaster, Pennsylvania. The plaque was awarded in recognition of the Plant's operating through 1,513,354 man-hours without a disabling injury during the period Sept. 14 to Dec. 6, 1959.

• • •

The nation's gas utility and pipeline companies in 1959 improved their accident frequency rate for the 12th straight year, recording an all-time low of 7.31 disabling injuries per million manhours of exposure. The gas industry has established the longest unbroken record of lost-time injury reduction in U. S. industrial history, the American Gas Association said in summarizing the annual report of its Accident Prevention Committee.

The new low rate compares with the all-time high of 21.86 in 1947 and the best previous rate of 8.07, set in 1958. While gas industry employment has climbed 30 percent since 1947, disabling injuries have declined by 67 percent.

A.G.A. also reports the industry's severity rate showed a 23 percent year-to-year improvement in 1959, making last year the second best on record. The severity rate (the number of days charged per million manhours worked as the result of disabling injuries) was 526. This compares with the all-time low of 462 in 1957 and the post-war peak of 1,277 recorded in 1947. The report is based on returns from 508 companies representing 92 percent of the gas industry's estimated 210,000 employees.

• • •

For the third consecutive year the Tin Can Division of Vulcan Containers, Inc., Bellwood, Illinois, has received the Can Manufacturers Institute Award for Safety, it was announced at a special ceremony in the Vulcan plant recently.

The award, a bronze plaque presented to the division on behalf of the Institute by Vern I. McCarthy, Jr., president of Vulcan, was won by the division for completing all of 1959 without a lost-time or disabling accident. The division received similar awards in 1957 and 1958.

Accepting the award on behalf of the Tin Can Division was E. A. Cognac, Jr., superintendent, and Mrs. M. Selk, safety committee member from the division. The division fabricates a variety of round tinplate cans for the printing ink industry and general line cans.

To be eligible for the award, an activity of the Industrial Hygiene and Safety Committee of the Can Manufacturers Institute, member

companies of the Institute must be able to present annually a spotless record with regard to time-loss accidents. In addition, a company must not have had any disabling injuries, regardless of lost-time.

In forwarding the award for presentation, the Can Manufacturers Institute said that Vulcan was one of 210 plants participating in the Safety Program. In addition, the Institute spokesman saluted Vulcan for its help in winning two national safety awards for the Institute. These are the National Safety Council Association Award and the United States Chamber of Commerce Award of Merit.

• • •

The St. Paul plant of American Brake Shoe Company was presented with the company's top safety award—the President's Safety Trophy—in recognition of its exceptional safety record in 1959. Kempton Dunn, president of Brake Shoe, awarded the trophy to Willard L. Ferguson, plant superintendent, in a special ceremony attended by plant employees and top company officials.

The St. Paul plant led Brake Shoe's 53 U. S. and Canadian plants with the lowest accident-frequency rating for the safety year. In 1959, St. Paul worked 47,469 man hours without a reportable injury. The plant's last lost-time accident occurred on April 19, 1957.

• • •

Highest honors for improvement in chemical manufacturing safety were awarded recently by the Manufacturing Chemists' Association to Wyandotte Chemicals Corporation and Henry Bower Chemical Manufacturing Co.

Each received a Lammot du Pont Safety Award—Wyandotte representing the category for firms with more than two million man-hours of work time annually and the Bower Company for those with under two million man-hours.

The bronze plaques commemorating the awards were presented during the Association's 88th annual meeting. The Lammot du Pont awards administered by the MCA are the most prized of all chemical manufacturing safety awards because they are won in open competition with other chemical companies. The annual competition began in 1950.

Winning firms are those which show the greatest percentage of reduction in their average disabling injury frequency rate for the past two-year period, compared with their rate for the immediately preceding three years.

Wyandotte Chemicals Corporation recorded a total of 181 industrial injuries during 1955–57, resulting in a frequency rate of 8.74 for each million man-hours worked. For 1958 and 1959 the firm's industrial injuries totaled 64, an average frequency of 4.01, for an improvement of approximately 54 percent.

Runner-up in this group was Monsanto Chemical Company with an improvement of 40 percent.

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facturing Co. had a total of 14 industrial injuries during 1955–57 and a total of two during 1958 and 1959. The rate of reduction was 77 percent, based on a frequency rate of 31.15 for the three-year period and 7.05 for the two-year period.

Runner-up to the Bower firm was Catalin Corporation of America with an improvement of 55 percent.

Presentation of the awards was made by John T. Connor, president of Merck & Co., Inc., and retiring MCA board chairman. Accepting for Wyandotte was R. B. Semple, president. Sydney Thayer, Jr., president of Henry Bower, accepted for his company.

In a brief introductory speech, S. F. Spence of American Cyanamid Company and chairman of the MCA's General Safety Committee, pointed out that a special drive launched early this year has resulted in a reversal of an unfavorable trend in the industry's safety record. The record for 1959 was the industry's worst in recent years.

The chemical industry still has one of the nation's best records of safety achievement, however, according to the National Safety Council.

• • •

The Maytag company's plant at Hampton, Iowa, has been cited for its safety record of operating six consecutive years without a disabling accident. A plaque was awarded the plant by the Industrial Safety Association of Iowa at the group's annual meeting held recently at Cedar Rapids.

The accident-free record of Maytag's Hampton plan, believed to be the best in the state, dates back to October, 1953.

• • •

The outstanding achievement in accident prevention by U. S. Army Transportation Terminal Command, Atlantic (USATTCA) during the Fiscal Year 1959 was given recognition when the National Safety Council bestowed four safety awards on the organization.

The Award of Merit, the Council's second highest award, was given to the U. S. Army Transportation Terminal, Brooklyn, and USATT, Hampton Roads. The Certificate of Commendation, the third highest award, was given to Headquarters USATTCA and USA TTC, Arctic. The four awards were presented to General Tank in Washington by Major General Frank S. Besson, Jr., Chief of Transportation. Presentations were made later by General Tank to commanders of subordinate commands and the USATTCA safety director.

• • •

Spector Freight System Inc., announced that in a one-month period, its fleet of 738 over-the-road drivers completed a 10-day period of 1,500,000 miles and a nine-day period of 1,400,000 miles of completely accident-free driving.

Jack Dieter, director of driving for the Chicago-based motor freight carrier, explained that the safe-driving periods occurred between April 24 and May 2, and May 8 and 18.

• • •

The National Safety Council has presented Stromberg-Carlson Division of General Dynamics Corporation the Award of Honor, its highest citation, for completing 4,330,000 man-hours without a disabling accident. Dr. Norvin C. Kiefer, a director of the National Safety Council, presented the plaque to Stromberg-Carlson President James D. McLean. Stromberg-Carlson safety manager is Leo A. Miller.

Earlier this month Stromberg-Carlson's Telecommunication Division received the Grand Award in the annual safety contest of the Associated Industries of New York State. Stromberg-Carlson's other two Rochester divisions, Electronics and Commerical Products, also received citations for perfect records, although their totals of man-hours worked were smaller. This state campaign covered the first three months of this year.

Stromberg-Carlson's national safety record actually spanned a four-month period from December 14, 1959, to April 8, 1960. After authorization of the award by the National Safety Council, Stromberg-Carlson employees worked another 400,000 man-hours, for a grand total of 4,713,256 man-hours without a disabling accident.

• • •

Ebasco Services Inc., a firm of Engineers, Constructors, & Management Consultants, has been awarded a special citation by the Florida Industrial Commission for outstanding achievement in industrial safety. The award was made in honor of Ebasco's working a total of 523,959 man hours in Florida during 1959 with only one minor lost-time accident. A scroll was presented to Ebasco vice president E. K. Wilkins by Stephen J. Roche, assistant director of Industrial Safety for the Commission.

In making the presentation, Mr. Roche stated that the award was a most unusual one and was being presented not only for the excellent 1959 record, but also for the interest in construction safety and outstanding results demonstrated by Ebasco during many years of construction activity in the state of Florida.

The impressive safety record also earned Ebasco awards for two projects completed in Florida in 1959. The 8th Annual Gold Safety Award for outstanding safety accomplishment was presented to E. A. Bird, construction superintendent of the Ft. Myers steam electric generating plant. W. T. Rogers, Ebasco safety director, made the award and hailed the construction organization of the Ft. Myers plant for achieving a near-perfect safety record which was 93.27% better than the national average of the construction industry. A total of 368,435 man hours was worked on this project during the year ended June 30, 1959 with only one lost-time accident.

The Ebasco Certificate of Achievement was presented to W. J. Bond, construction superintendent of the Sanford steam electric generating plant. The Sanford organization achieved a safety record 88.60% better than the national average. Both the Ft. Myers and Sanford plants were constructed by Ebasco for Florida Power & Light Company.

Learning The Hard Way

THESE THINGS DO HAPPEN!

The simplest types of accidents and injuries are often the most difficult to prevent. People just will not believe that some of these every-day accidents will happen to them. Take the case of a man walking down a flight of steps. He was in no hurry and he was alone—no pushing or crowding. He had a brief case in one hand, but the other hand was free to grasp the handrail. But he didn't use the handrail and when his foot merely slipped, he lost his balance and fell forward four or five steps to the landing, fracturing his arm. This type of accident is happening all the time in spite of posters, warnings and safety meetings. Why not really dramatize such accidents by putting up signs near the scene of the accident? Such as: "On this spot an employee fell and fractured his arm, because he didn't use the handrail."

FAIR WARNING

A calf was found dead, electrocuted when it contacted a guy wire for a 480-volt electric system pole. Instead of being attached to the non-conductive pole itself, the guy wire had been connected to the same bolt holding a service terminal insulator. This dead-end insulator had subsequently broken, letting the line energize the bolt and the guy wire. Inspectors had overlooked the unsafe arrangement on several occasions, but after the death of the calf, five similar hook-ups of guy wires were found on nearby poles. Needless to say, the hazard was corrected before humans instead of calves were electrocuted.

DEAD BUT NOT BY SHOCK

Electricity, even of 115 volts, can electrocute. In other cases, it is not the electricity itself, but the surprise of a relatively harmless shock that causes tragedy. Take the case of an iron worker using an electric hand drill to make a hole in a steel-frame sheet metal roof. There was a short circuit, he got a shock, lost his balance, fell off the roof and was killed. It was found that the tool had been defective and the employee had not grounded it properly either. Tools, especially powered tools, must be kept in top safety shape and employees must be instructed in the correct methods of safe grounding.

NEED FOR EYE PROTECTION

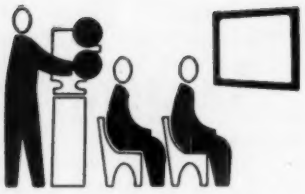
The importance of 100 percent wearing of eye protective devices in an industrial plant is underscored by this accident which occurred on a shipping dock, an area not commonly thought of as eye hazardous in comparison with other phases of manufacturing. The shipping dock worker was doing some routine checking when a flying object, almost literally "out of the blue," struck and shattered one lens of his safety glasses. The object turned out to be a screw shot out by the revolving blade of an overhead fan. Fortunately, he did not have to "learn the hard way."

EQUIPMENT INSPECTIONS VITAL!

This shipyard worker was using a portable grinder powered by compressed air. After using the grinder for about ten minutes, the wheel suddenly broke and one of the pieces struck the worker on the head, killing him. Investigation indicated that the wheel, designed for operation at 6750 rpm had actually been operating at 13,800 rpm; and that a defective governor had permitted this excessive speed. Furthermore, it became apparent that there had not been continuous inspection and maintenance of the portable grinder. All equipment must be safety checked periodically, especially portable tools which are likely to be used by several people under varying and often adverse conditions.

SHORT CUT TO INJURY

How much time does a time-saver save? None, if he tries to save time at the expense of safety. For example, a washroom maintenance man had been given exact instructions about mixing a half cup of disinfectant in a pail of cold water. He, however, figured he could do his work in half the time if he doubled the concentration. He used a cup of the disinfectant and filled the pail with hot water. After using this type of solution for a couple of days, his face was so swollen he could barely see and he had a severe case of dermatitis. The disinfectant contained carbolic acid and with the hot water was exposing him to dangerous vapors. It was a long time before he recovered.



Safety on Film

Displaying the bronze plaque award to the Wise Owl Club of the National Society for the Prevention of Blindness for the industrial eye safety film, "It's Up to You!" are (left to right): John W. Ferree, M.D., executive director of the Society; James E. O'Neil, technical supervisor of the film and director of industrial service for the Society; and Leo Trachtenberg, who wrote, produced and directed the award winning color motion picture for Harvest Films.

Eye Film Wins Award

"It's Up to You," a hard-hitting industrial eye safety film released by the National Society for the Prevention of Blindness, New York City, has been awarded top honors by the National Committee on Films for Safety.

The film stresses the full time use of safety eyewear by telling a narrative case history of a needless eye injury suffered by an unprotected worker. One dramatic sequence shows the industrial employee undergoing eye surgery for removal of a metal fragment. The film shows the impact of the accident on his family, and spells out recommendations for selecting and wearing proper eye protective devices.

"It's Up to You" has been acclaimed by management, labor, educational and health agencies. A Spanish sound track version, soon to be released in cooperation with the Inter-American Safety Council, will further increase distribution of the film in South America. Prints of the film with English narration are already in use in Canada, England, Australia, New Zealand and South Africa.

The film was produced and directed by Leo Trachtenberg of Harvest Films with James E. O'Neil of the National Society for the Prevention of Blindness serving as technical advisor. Brittain F. Payne, M.D., F.A.C.S., executive surgeon, New York Eye and Ear Infirmary and a vice-president of the National Society was medical supervisor.

The 16mm color sound film, 11 minutes in length, is available for purchase or rental from Harvest Films, 90 Riverside Drive, New York 24, N. Y.

"Sneak Attack"

"Sneak Attack," a graphic account on color film of how easily fire may strike and in a matter of moments turn a peaceful home, institution or industrial plant into a roaring inferno and death trap, has been reissued in 16mm sound prints by the Falcon Alarm Company.

In disturbing detail, this 13 minute documentary shows how fire capitalizes on man's fraility, how most of us through negligence, carelessness and downright indifference continue to leave the door wide open for fire to enter and take its annual toll of 11,000 and more American lives, with 40,000 others each year scarred or permanently crippled.

With ironic commentary on the community's apparent concern for the welfare of its citizens, particularly its youth, in other less perilous matters, the film takes the viewer in front of official fire lines, itemizes the eight major ways in which fire makes it devastating attack every 28 seconds of every day in the United States, then points out the exceedingly simple steps any citizen may take for effective counter-attack.

Early Warning

Underscored is the home and plant owner's particular need of a reliable device that will automatically detect and give early warning of fire, the vast majority of deaths in fire being attributable to asphyxiation by the deadly heat and gases rapidly built up in the first moments of fire, long before victims may be aware of the fire and have chance to escape, much less time to arouse and save others and summon the fire department. The film then goes on to describe

one such device, the Falcon Automatic Fire Detector, listed by Underwriters' Laboratories and perfected to give just such prompt automatic detection and warning with a loud, piercing horn blast. New sequences have been incorporated in the reissued film to show Falcon's new series of detectors, which are compact, relatively inexpensive, easily installed, and equipped with a sight glass to permit easy visual inspection at all times. These detectors are available as individual units for placement in hazardous areas or as complete systems for the protection of homes, schools, churches, hospitals, commercial buildings and industrial plants.

Praised by civic, industrial and educational groups, "Sneak Attack" is available for showing to schools, organizations and other interested groups on loan from Falcon's Motion Picture Department, Falcon Alarm Company, 243 Broad Street, Summit, New Jersey.

Construction Safety

Simple neglect by "good" construction equipment operators can result in death and injury to themselves and others, severe hardship for their families, and heavy financial loss to their companies.

This is the hard-hitting message of "The Quota," a new 25-minute safety film produced by the Construction Machinery Division of Clark Equipment Company, Benton Harbor, Mich., in cooperation with the National Safety Council.

Based on the hard facts of heavy construction life, the movie depicts many of the accidents that happen and shows why they happen. In every case, the vital preventive steps that should have been taken come through loud and clear in unlabored fashion.

In contrast to the usual "you'll be sorry" approach to safety instruction, "The Quota" deals both with accident prevention and with cumulative and far-reaching effects of construction equipment accidents.

By dramatically recalling several accident case histories, but without preaching, the film makes the vital point that it is usually a single tragic oversight that leads to accidents. Overconfidence bred by the operator's familiarity with his machine is suggested as a major cause of careless performance.

Several true-to-life accident situations are shown. For example:

A tractor scraper operator attempts to change cutting edge of scraper bowl without securing apron and bowl with wooden blocks.

Another scraper operator remounts his machine, parked with engine running, grabs steering wheel and is thrown to the ground as power steering reacts.

Operator stops his scraper to watch maintenance on second machine, leans over side holding steering wheel. Maintenance man crushed as scraper turns suddenly.

Operator, sneaking a cigarette in no smoking area, ducks behind another machine which is parked for a moment. He is run down as machine moves on.

Crane operator fails to see high tension wires.

Operator fails to check hydraulic line, dozer crashes as brakes fail on grade.

Children climb aboard tractor shovel which driver has left with engine running, bucket raised.

These and other accident sequences are shown as emergencies that could—but shouldn't—happen to any construction machine operator.

Modern construction equipment, the movie stresses, is as safe as engineering know-how can make it. Refinements such as power steering and power trains with torque convertors and automatic transmissions lessen operator fatigue and, in effect, are built-in safety features. Construction machines become dangerous only in the hands of unskilled or careless men at the wheel, the film story points out.

The film was produced for Clark's Construction Machinery Division by Pilot Products, Inc., Evanston, Ill. The new film should

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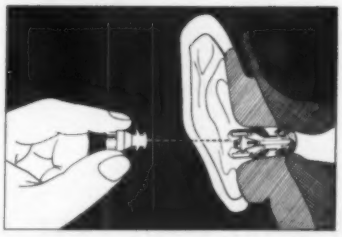

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be required viewing for every contractor and his men, according to a poll of those attending the film's premiere at the 1960 Convention of the Associated General Contractors in March. It is available on loan from the Construction Machinery Division of Clark Equipment Company, Pipestone Plant, Benton Harbor, Mich., or from Pilot Productions, Inc., Evanston, Ill.

Highway Safety Films

Educational safety films produced by the Aetna Casualty and Surety Company are available on a free loan basis for specific showings from the company's Information & Education Department at Hartford 15, Conn., or through local Aetna representatives.

Among the free loan films are several dealing with various aspects of highway safety. The free loan of all Aetna films is restricted to the continental United States and they may not be televised without prior consent. Following are the films on highway safety:

Don't Skid Yourself:—16mm, Sound, B/W, 13:30 minutes. This film illustrates the methods for maneuvering cars on icy roads and it makes suggestions on how to react under hazardous winter driving conditions. It was produced in cooperation with the Committee on Winter Driving Hazards of the National Safety Council.

Look Who's Driving:—16mm, Sound, Technicolor, 8 minutes. A hard-hitting imaginative cartoon animation is used to demonstrate the perils of acting like a child behind the wheel. Charlie Younghead, star of the film, gives ample reason to appreciate the lesson he had to learn the hard way: "Don't be a Younghead at the wheel." Award-winning film.

Safe On Two Wheels:—16mm, Sound, B/W, 11 minutes. A test pilot parallels the importance of safe bicycling with piloting a plane safely for a young boy who has befriended the flyer. Besides rules for safe driving, it also covers suggestions for proper care of bicycles. Award-winning film.

Teach Them Now:—16mm, Sound, B/W, 21 minutes. This is a documentary film describing a revolutionary behind-the-wheel training device, called the Ætna Drivotrainer, with which one instructor can give driving lessons to groups of students right in the classroom.

To See Ourselves:—16mm, Sound, Color, 14:30 minutes. The film shows how Jim Morrow—father, businessman and suburban commuter—learns to see himself from the other fellow's point of view and finds that the "other driver" is not always at fault.

What's Your Driver Eye Q?:—16mm, Sound, B/W, 13:30 minutes. In a new approach to teaching rules and attitudes for safe driving, this film permits actual participation by the viewer. By presenting 15 different traffic situations each photographed from a moving car, the viewer becomes the "driver" and is responsible for his own decisions in each of the situations and is asked to choose the correct response in each situation from three possible choices given. *Film is available in two versions: a "public" version in which the correct answers are supplied in the film; the "classroom" version in which the correct answers are supplied separately in a 36-page instructor's guide.*

Emergency Rehearsal

A realistic plant shutdown under simulated emergency conditions featured a day-long meeting at Jones and Laughlin Steel Corporation in Pittsburgh, Pa., which reviewed its industrial defense and survival planning. The program started with a breakfast, sponsored by the Greater Pittsburgh Chamber of Commerce, for 200 industrial and business leaders. Civil and Defense Mobilization Director Leo A. Hoegh was the principal speaker. He outlined the need for civil defense preparedness, discussed the steps which should be taken by industry in preparing for industry defense and disaster control, described the National Plan for Civil Defense and Defense Mobilization, and emphasized the need for individual preparedness.

Following the address, Governor Hoegh presented "Certificates of Appreciation" from OCDM to the company for its pioneering efforts and leadership in disaster preparedness, and to the company Industrial Defense Director for his outstanding personal contribution to nonmilitary defense.

Buses carried the group to J&L's Hot Strip Mill, where an actual plant shutdown was conducted. Employees went into shelters. Demonstration exercises were conducted in first aid, fire fighting, rescue, traffic control, and other civil defense life-protecting techniques.

The group visited the company Emergency Headquarters and toured the company's underground records storage facilities located an hour's drive from Pittsburgh. The company spokesman explained their post-attack plans for emergency restoration of production.

Emergency Food Supplies Used

At the Emergency Headquarters, dinner was served from the regular stock of emergency canned food supplies. Drinking water was taken from the emergency water supply which had been stored for over two years in specially-designed Jones and Laughlin five gallon metal containers. Exhibits were arranged to show the kinds and quantities of food which are stocked at the company's Emergency Headquarters. Civil defense publications were distributed.

What to Say At Safety Meetings

A distinctive new book in the field of safety is a practical guide for safety directors, safety committeemen and foremen in conducting accident prevention meetings for employees. As its name implies, "What To Say—At a Safety Meeting," presents useful and usable talks on various general and specific safety topics in a sensible but lively manner. The book was prepared by and based on the long experience of J. A. De Luce, I. E., P. E., Safety Superintendent of E. I. du Pont de Nemours & Co., Inc.

The guide offers a book full of abstract topics and abstract programs "ready to use." It is appropriate for both occupational and nonoccupation groups, ON or OFF the job, for men, women, and children above the 10th grade.

The programs have been field-tested as written for over five years on 35 locations in six states. The book contains 44 subjects (of about 300 words each), designed for safety meetings of from 15 to 30 minutes.

Copies of the book are available from: New Forum Publishing Co., Inc., P. O. Drawer 2724, Wilmington 5, Del. The price for single copies is $2.00. Discounts are given for quantity orders for six copies or over.

Driving Booklet

International Parts Corporation is now offering as a public service a free 16-page booklet "Golden Rules For Better Driving." This booklet contains the basic information necessary for safe driving, plus rules and hints for improving driving skill.

One section of this booklet illustrates the most common emergency situations that arise in driving and explains the proven safest way for drivers to meet each of these situations.

Mr. Nate Sherman, President of the International Parts Corporation said, "We feel just to tell the public to drive carefully is not enough to decrease the appalling rate of accidents in this country. It is also essential that we put into the hands of the public the information necessary to increase their driving skill. In our booklet 'Golden Rules For Better Driving' we have done this in a way that the public will find interesting and informative."

This new booklet on driving is available through distributors and dealers of International Parts Mufflers throughout the country or by writing the International Parts Corporation, 4101 West 42nd Place, Chicago 32, Illinois.

Safety Analysis of Uranium Processing

The Atomic Energy Commission has published a 200-page report, **"Safety Analysis Of Enriched Uranium Processing (NYO-2980),"** which is available from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., for $3.00.

The document represents the results of a study conducted to provide basic information and to evaluate the potential hazards involved in the processing of unirradiated, enriched uranium in AEC-licensed commercial plants. The potential sources of nuclear accidents, the range of possible excursion magnitudes, and the possible consequences in terms of the extent of the radiation hazards from direct nuclear radiation and the dispersal of radioactive fission products are considered in the report.

The survey was conducted by the Convair Division of General Dynamics Corporation under contract to the Commission. Reference copies of the report have been placed in the Commission's Public Document Room at 1717 H Street, N. W., Washington, D. C.

New Developments In Thermal Insulation

"Re-thinking Thermal Insulation," a new booklet, is a guide to the best use of thermal insulating materials under the changing conditions of modern industry. It emphasizes the "economic thickness" approach to specification, which enables management and engineers to determine the point at which insulation gives the greatest financial return for its cost, considering both operating and capital savings.

Publisher of the booklet is the National Insulation Manufacturers Association, an organization of leading manufacturers of all types of inorganic insulations.

Dollar savings through reduction of heat loss, process control, condensation prevention, and protec-

tion of personnel and equipment are given as the four main functions of insulation. Detailed descriptions and characteristics of types of insulation are given. The question of when surface temperature should determine insulation thickness is reviewed.

The booklet also contains an index to ASTM and government specification, as well as a section on "Economic Thickness—How to Figure It." A worksheet on economic thickness is included.

Copies of "Re-thinking Thermal Insulation" are available free from National Insulation Manufacturers Association, 441 Lexington Avenue, New York 17, N. Y.

Industrial Lighting

An answer guide to RLM-labeled industrial lighting equipment has just been published for the use of buyers, specifiers and sellers by the RLM Standards Institute. The pamphlet is designed to answer the most popularly asked questions concerning the RLM label and the RLM program. The six-page answer guide reviews the many factors related to proper selection of quality lighting equipment. Complimentary copies are available to all interested in industrial lighting equipment and may be obtained from the RLM Standards Institute, 326 W. Madison Street, Chicago, Illinois.

Glare Reduces Lighting Effectiveness

Many buildings throughout the country lose up to one-half the effectiveness of their lighting because reflections interfere with vision, a prominent illuminating engineer declared recently in reporting on results of a new series of scientific studies. A large part of the loss can be reclaimed by modifying lighting fixtures and by paying greater attention to location of mountings, C. L. Crouch, secretary of the Illuminating Engineering Research Institute, New York, told an audience of light-and-sight specialists at regional meetings in Phoenix, Arizona; Los Angeles, and Memphis, Tennessee.

The studies developing the new facts on reflected glare were conducted in schoolrooms in Toronto, Canada, and were confirmed through the use of various light-measuring instruments in laboratories at the University of California and at the Institute for Research in Vision at Ohio State University, Mr. Crouch said. The studies were supported, in most instances, by I.E.R.I. grants.

Mr. Crouch also discussed a continuing series of tests which indicated that most highway lighting may be 50 percent below the level needed to safely stop a vehicle moving at 40 to 45 miles an hour. These studies, also conducted by Ohio State University light-and-sight scientists, showed that even those highways lighted at the level presently recommended by road-lighting experts do not have enough illumination for reasonable pedestrian safety.

Reflecting Fixtures Cause Losses

The scientific cause of the loss of effectiveness in school lighting, Mr. Crouch explained, is that overhead lighting fixtures are reflected in the written and printed material on writing paper and printed pages.

"More than a decade ago," he said, "lighting engineers thought they had solved this problem by recommending the use of dull or matte-finish writing and printing paper, and non-glossy walls in classrooms and offices. But our recent tests have shown that even these precautions have neither eliminated glossy reflections in written work nor reduced these interferences sufficiently."

The studies proved, Mr. Crouch pointed out, that glare from reading materials can be partially controlled by mounting light bulbs in fixtures shielded at the bottom. In this way, he explained, "the major amount of illumination is reflected to and across the white ceiling and then re-reflected to the reading area."

The glare can be reduced further, he added, by mounting the lighting fixtures behind or on either side of the working area, but not in front of them.

Plant Engineering and Maintenance Seminars

The second annual Plant Engineering and Maintenance Seminars conducted by North Carolina State College's Industrial Experimental Program will be held this year in Raleigh, N. C., from September 14 through 16. In conjunction with the three-day event, a maintenance and engineering show will again be held at the State Fair Arena.

J. R. Ogburn, Seminars chairman and I.E.P. staff members, announced that this year's program will be sponsored by the three North Carolina Chapters of the American Institute of Plant Engineers, the North Carolina Section of the American Welding Society, and the Maintenance Council of the North Carolina Motor Carriers Association.

Multiple seminar programs are planned for simultaneous presentation. These include a Plant Engineering and Maintenance Seminar for building and plant maintenance engineers; a Fleet and Maintenance Seminar for shop and maintenance management personnel in the motor carrier field; and a Welding and Maintenance Seminar for persons interested in the welding area.

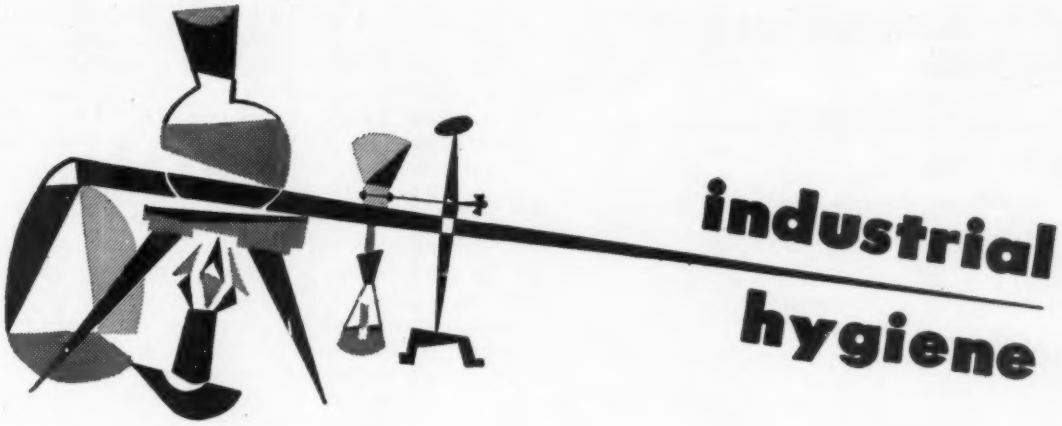
Chairman Ogburn said "the seminars and show will afford proper atmosphere and opportunity for the exchange and expansion of ideas which will advance our industry technology."

The purpose of the seminars is to bring to the southeastern area nationally-known authorities who will present technical papers based on their experience in many fields that make up the nation's industrial facilities. These presentations will cover the latest methods and techniques in the areas of engineering, maintenance, production and management.

Last year's event, one of the best attended engineering conferences ever held in the Southeast, attracted over 400 maintenance engineers. The multiple seminars this fall are expected to enroll a total of more than 1,000 representatives.

The show, again to be produced by John Harden Associates of

(Continued on page 54)



Nuclear Submarine Builders Protected Against Radiation

The Electric Boat Division of General Dynamics, Groton, Conn., which has built eight nuclear submarines for the Navy and has been working with radioactivity "in one form or another for many years" has never had a case of radioactive exposure "above normal limits." This has been due to advance planning, employee education and monitoring producers, Joe E. Logsdon, of Electric Boat Division, reported in a paper, "Shipyard Radiological Safety as Related to Nuclear Submarines," presented at a nuclear safety symposium during the Summer General Meeting of the American Institute of Electrical Engineers.

Extensive records are kept on radioactive material, radioactive areas and personnel exposure.

There are two possible safety procedures, one to use only personnel with intensive training in nuclear physics and radioactivity, and the other to use personnel with limited training but under the supervision of personnel trained in radiological safety. Electric Boat uses the latter, with supervision by the Health Physics Department which monitors personnel working in radioactive areas to see that they wear correct protective clothing and use correct personnel monitoring devices; to prevent spread of radioactive contamination from one area to another; to keep records of radioactivity levels and to keep daily record of personnel exposure through dosimeter readings.

Industrial Hygiene Foundation's Silver Anniversary

The Industrial Hygiene Foundation is currently celebrating its 25th Anniversary as a research association for the advancement of industrial health, hygiene and welfare. Of interest to industrial personnel charged with health and hygiene responsibilities is a new, illustrated brochure describing the Foundation and its work and available free to those requesting copies.

The Foundation was established by industry in 1935 as a centralized research organization to provide technical information and services, and through which industries could cooperate and collaborate on problems of mutual interest. During the past 25 years, the Foundation has added greatly to the basic knowledge in the field of industrial health and has been a symbol of industrial initiative and leadership. Keeping pace with the growth of the Foundation and changing concepts of industrial health practices, improved and expanded toxicological research facilities have recently been acquired, and more emphasis has been placed on informational services.

The increasing attention to the effects of the total environment on man both during occupational and nonoccupational activities, and the rising costs of compensation, emphasize the complexity and the growing economic importance and the need for sound progressive industrial hygiene and occupational health programs. The Foundation provides an opportunity for unified action on the part of industry to prepare today to meet the challenge of tomorrow.

Copies of the brochure describing the services of the Foundation are available free from: Dr. H. H. Schrenk, Managing Director, Industrial Hygiene Foundation, Mellon Institute, 4400 5th Ave., Pittsburgh 13, Pa.

New Safety Data Sheets

Safe handling procedures for butyraldehydes and formaldehyde are described in two new chemical safety data publications recently added to the series produced by the Manufacturing Chemists' Association.

The new publications are SD-78 (Butyraldehydes) and a revised SD-1 (Formaldehyde). SD-78 includes data on normal—and isobutyraldehydes. SD-1 first was issued in 1946. It was revised last in 1952.

The MCA safety data publications provide detailed information on properties, potential hazards, engineering control of hazards, employee safety, fire fighting, storage, tank and equipment cleaning and repair, waste disposal, medical management and first aid procedures.

Copies of SD-78 and revised SD-1 are available at 30 cents each from the Association, 1825 Connecticut Ave., N.W., Washington 9, D. C.

Need for Access Openings During Ship Repair

Gilbert Widdowson, safety engineer at Sun Shipbuilding and Dry Dock Co., is presenting a paper at a meeting of the Altantic Safety Exchange in the Sheraton-Atlantic Hotel in New York City March 30 and 31. Mr. Widdowson's subject is "The Need for Access Openings in Shipbuilding and Repair."

The Atlantic Safety Exchange is an organization of safety engineers from all shipyards on the East Coast. On the morning of the 30th the members will attend a meeting of the Marine Section of the National Safety Council.

According to Mr. Widdowson, an opening in a deck or bulkhead 15 inches by 24 inches can mean the difference between life or death for anyone working in a confined space. It is not enough that there be access, there must be an escape at the opposite end, and so located that there are no traps within the confined space. Without the proper temporary access holes a man cannot say that all of the foreseeable precautions have been taken while a ship is under construction, or is being repaired.

"Twenty-odd years ago we were building Sea Trains which called for a double shell or a shell cofferdam. The cofferdam ran from the second deck to the tank top, with one access opening at the second deck level, forward end. One morning a fix-up man went into the cofferdam with a burning torch, climbed down to the tank top level and aft to the aft bulkhead. He wrapped his gas and oxygen lines around a staging plank overhead a few turns and let it hang there lit, either for light or heat, for it was a cold day. A few hours later he was found burned to death. The gas and oxygen lines were afire. An opening was cut into the cofferdam to retrieve the body.

"An investigation uncovered the many needs for access openings. First, there was a deficiency of oxygen in the area of the workman; second, the gas and oxygen fire had cut off his means of escape; third, the climb to his job was hazardous. It is believed that an access opening would have provided ample oxygen and a way of escape for a man. The most logical location for a temporary access was where the body was retrieved.

"To eliminate the hazard of workmen, especially welders and burners, working in confined spaces, the Safety Department makes a study of preliminary prints for new construction with the Berthing Department, to eliminate all traps. In addition to our standard 15" x 24" access, we have a ten-inch diameter hole for all lines located approximately six feet from the hatch opening or manholes, and a 13 inch diameter hole for ventilation, cut in all decks in the bow section from the upper deck level to and into the fore peak. In this way all deck openings and ladders are clear. The same holds true for the aft end of the ship from the upper deck leading into the aft peak.

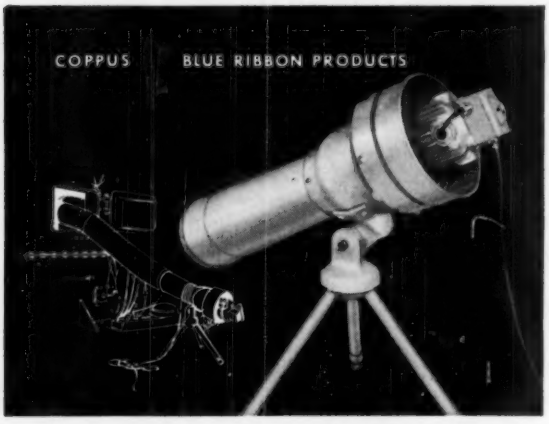
"When we are satisfied that all areas are clear and have the approximate location of all access holes, we then see the chief structural engineer and clear all temporary access for obstructions, such as: piping, machinery, grating, etc. He clears them with ship owners, maritime and all concerned. When he has their approval he then adds all access openings to his prints. Certainly, the owners of the vessels will not object when they have all the facts at hand. The safety inspectors are then given a list of locations of all access holes and they see that none are missed.

"Patch plates for the temporary openings is the last job done prior to tank testing. There are, of course, conditions where an access hole would not be feasible such as a fresh water tank or any small tank with practically no welding or burning. In these cases a notice is stenciled at the manhole stating that a burner working inside must have a 'standby' outside.

Make Survey of Job

"Locating access openings in ship repair requires a job survey and is generally requested of the ship operators as the need arises.

"Experience has proved that access openings not only eliminate hazardous conditions such as traps, oxygen deficiency, ventilation, lines through manholes and across ladders, but make confined spaces more readily accessible. In tanker construction they are a great help to production. Openings are cut in all transverse and longitudinal bulkheads at the shell bottom. Workmen have access throughout the ship from fore peak to aft peak and from shell to shell. This eliminates climbing to the upper deck level for access, proving that in safety, production does benefit."



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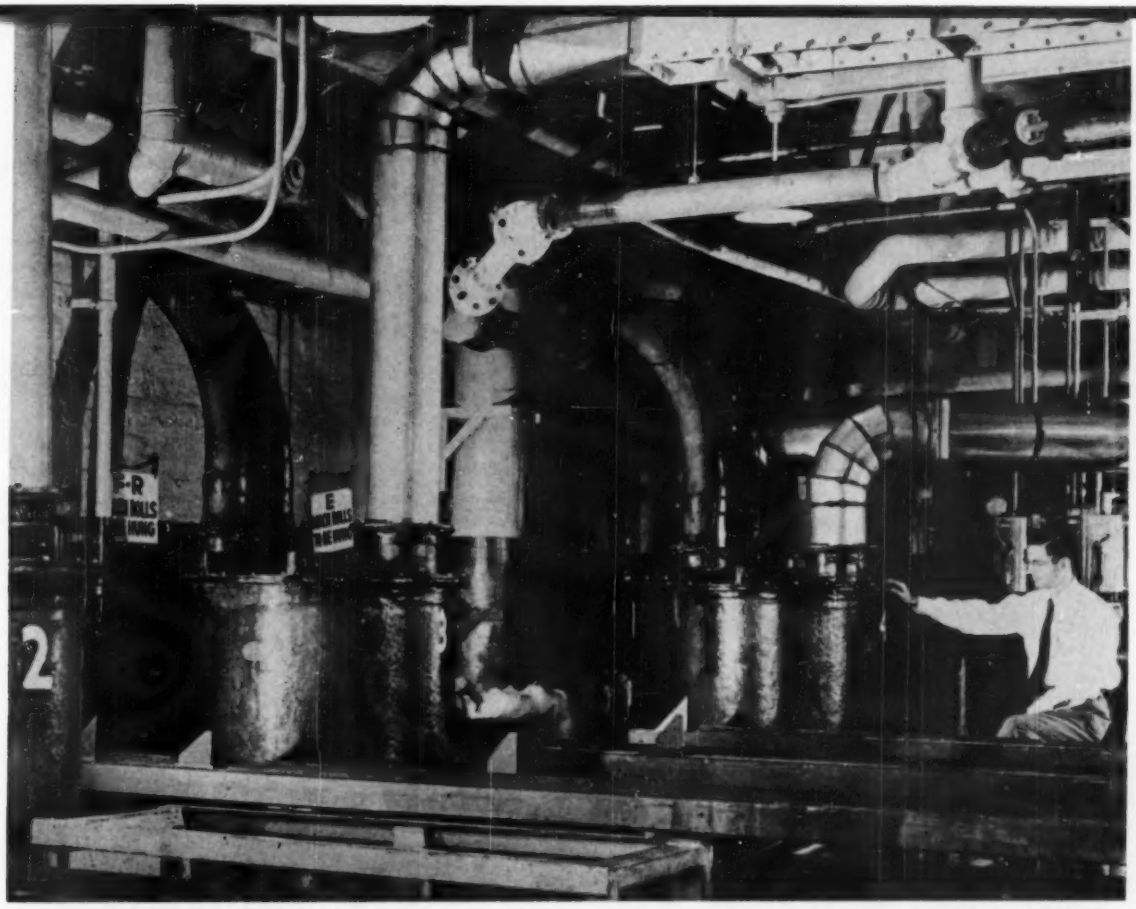
City.....

COPPUS BLOWERS

(For details, use Key # U-12 on card on page 1)



Fiberglass-reinforced polyester ducts and tanks are the answer to an unusual exhaust problem related to a photographic paper-coating operation. The system was easy to install, required no insulation, little maintenance.

Plastic Duct Solves Sticky Problem

Until 1958, certain critical process exhaust requirements of a photographic paper coating operation had presented a continually sticky—and costly—maintenance problem at Eastman Kodak Company's largest manufacturing plant, the Kodak Part Works in Rochester, N. Y.

Today, two years later, the problems formerly experienced with metal ductwork then in use are now largely past history. Installation of fiberglass-reinforced polyester ducts has proven a tailor-made, effective solution. Since the new ducts were installed, no cleaning has been necessary.

Kodak's problem stemmed from the nature of the processing operation itself. At one stage a chemical spray forms around a coating pan. Composed of pigment, gelatin, formalin, dyes and water, the sticky mixture is carried off by the exhaust system.

Source of Trouble

The source of the trouble, however, was that the spray adhered tenaciously to metal surfaces, and hardened upon drying. Consequently, the old system required thorough cleaning weekly to remove the "plated" insoluble pigment—a tedious, time-consuming, expensive chore.

Long usage of the ductwork, corrosion, and repeated frequent cleanings finally took their toll in 1958, making replacement of the system desirable. Kodak engineers first investigated several kinds of 6-in. nominal size tubing.

The stringent physical requirements of the application, cost, and ease of fabrication were the principal criteria used in evaluating the materials studied. Only fiberglass-reinforced polyester passed muster on all counts.

Physical Requirements

Application requirements were many and varied, indeed. First, resistance to the corrosive effects of chemicals entrained in the exhaust air was carefully considered. Ease of cleaning was another major consideration.

Equally important, Kodak engineers sought a material which would effectively resist the adherence of the insoluble pigment on the inside wall of the piping. Furthermore, elimination of carryover of entrained material and deposition of insoluble pigment on exterior plant walls was desired.

Certain other important factors also entered into the selection of a material for the ductwork. They included inherent fire-resistance and simplicity of in-

stallation in an area already well crowded with processing equipment. And to facilitate cleaning, large radius elbows were required.

Once it was determined that fiberglass-reinforced polyester offered the most practical and economical answer to their ductwork problem from these standpoints, Kodak engineers then visited several plants where pipe of this type is installed.

They found, among other things, that this material provides excellent resistance to the corrosive action of most strong acids; also, that it can be easily spliced, making fabrication and installation of ductwork comparatively simple and inexpensive. And the low heat transfer coefficient of polyester eliminates the necessity of insulation to prevent "sweating."

Polyester's slipperiness, or resistance to adhesion, proved a decisive factor; it assured virtually complete elimination of maintenance. This feature would enable ductwork fabricated from this material to repel the adherence of the sticky insoluble pigment on interior surfaces of piping.

Accordingly, the required ductwork was fabricated to Kodak's specifications from a fire-resistant polyester resin.

Besides providing all the advantages associated with conventional polyesters, the specific resin used is corrosion-resistant and inherently possesses superior fire-resistance adequate for approval by the fire underwriters. Fire-resistance is achieved without impairing or degrading the resin's structural strength, light weight, and its other desirable physical and chemical properties.

Pre-assembled by the fabricating company, the ducts were installed easily and quickly. They required only three splices per branch between the hoods and the separators. Each splice needed about 20 minutes for hardening.

Homogeneous Installation

The entire system is thus a homogeneous installation that is fire-resistant, corrosion-resistant, sturdy and strong, yet light in weight. Ordinary strap and clevis hangers, spaced 10 to 15 feet apart, support the ductwork. No insulation or painting was required.

The system contains 11 hoods exhausted by 22 six-inch nominal diameter ducts. Each duct handles 500 cfm. of air and 2 gpm. of sprayed water and entrained chemicals. Interior surfaces of hoods and ducts are sprayed with water to keep them moist during operation. Elbows have 36-in. centerline radii, providing easy access for cleaning purposes. Ducts are pitched about ¼ inch per foot.

Spray entrained in the air is removed in eleven tank-type separators, each 3 ft. high by 3 ft. in diameter, which also were fabricated from the same fiberglass-reinforced polyester resin. These jacketed separators permitted the use of other non-plastic ductwork to exhaust the air after disposal of entrained material.

Since their installation two years ago, the fiberglass-reinforced polyester ducts and tanks have met Kodak engineers' exacting expectations in every respect. Previously, the system required cleaning every week; thus far the new system has required no cleaning.

The engineers also report other important advantages: There have been no leaks or plugging of the system, and the tank traps have eliminated pigment deposition on the outside walls of the building.

As Kodak's experience indicates, the use of fiberglass-reinforced polyester in the construction of ducts, stacks, hoods, fans, tanks, trays, ejectors, hoppers, covers and allied units gives the chemical industry and others a versatile means for cutting costs, improving productivity, increasing operating performance, and lengthening equipment serviceability.

Not only is equipment fabricated from this material generally easy and thrifty to install, but it also provides a highly satisfactory answer to many plant, mill, factory, or shop problems where structural strength, light weight, and resistance to fire, corrosion, and high temperatures are important design and performance considerations.

Pictures by courtesy of Durez Plastics Div., Hooker Chemical Corp.

Results of Radiation Incident

The results of a study of the accidental release of radioactive material from an opeating cell in the Solid States Building at Oak Ridge National Laboratory on April 26 have been announced. Eight persons were immediately in front of the cell at the time of the accidental release. Of these, the highest annual internal exposure, which was received by one individual, was slightly more than two rems to both lungs and to the bone. The seven others received internal exposures ranging from slightly more than 0.5 rem to 0.1 rem. The maximum permissible annual dose to the lungs, as recommended by the National Committee on Radiation Protection and Measurements, is 15 rems, and to the bone 30 rems.

At the time the incident occurred, an irradiated, graphite-clad reactor fuel element was being cut inside the cell with a remotely-operated saw. A change in air pressure inside the cell forced contaminated graphite dust from the cell. This change in pressure apparently was caused by the top slab having been removed from an adjacent cell and by wind blowing through an opened outside door immediately behind the cell. These conditions caused the pressure inside the cell to become positive to the extent that it forced graphite particles contaminated with cerium and strontium into the work areas immediately in front of the cell.

In addition to the eight persons in front of the cell, 104 others were in the building at the time of the incident or were involved in initial cleanup operations. As a precaution, bio-assay samples were taken from all of these. None of the 104 showed any evidence of internal exposure which would exceed 0.1 rem for the first quarter following the exposure.

Cleanup of the building was complicated by the fact that the radioactive material was spread within the building by the air-conditioning system. Cleanup has been completed in the office sections of building and all operating areas have been reoccupied.

With the "victim" apparently hopelessly trapped in wrecked auto, demonstrators go to work with hydraulic rescue tools.

Hydraulic Tool Speeds Rescue Work

How hydraulic power can be utilized to save lives was demonstrated recently when an apparently hopelessly trapped "victim" was freed from a wrecked car in a matter of minutes.

The mock rescue was staged for an audience of safety engineers and representatives from City, State, and County police and firemen who gathered outside Pittsburgh's Hilton Hotel, scene of the annual Western Pennsylvania Safety Conference.

Minutes later, door has been sprung loose from jammed position and "victim" has been removed, placed on stretcher.

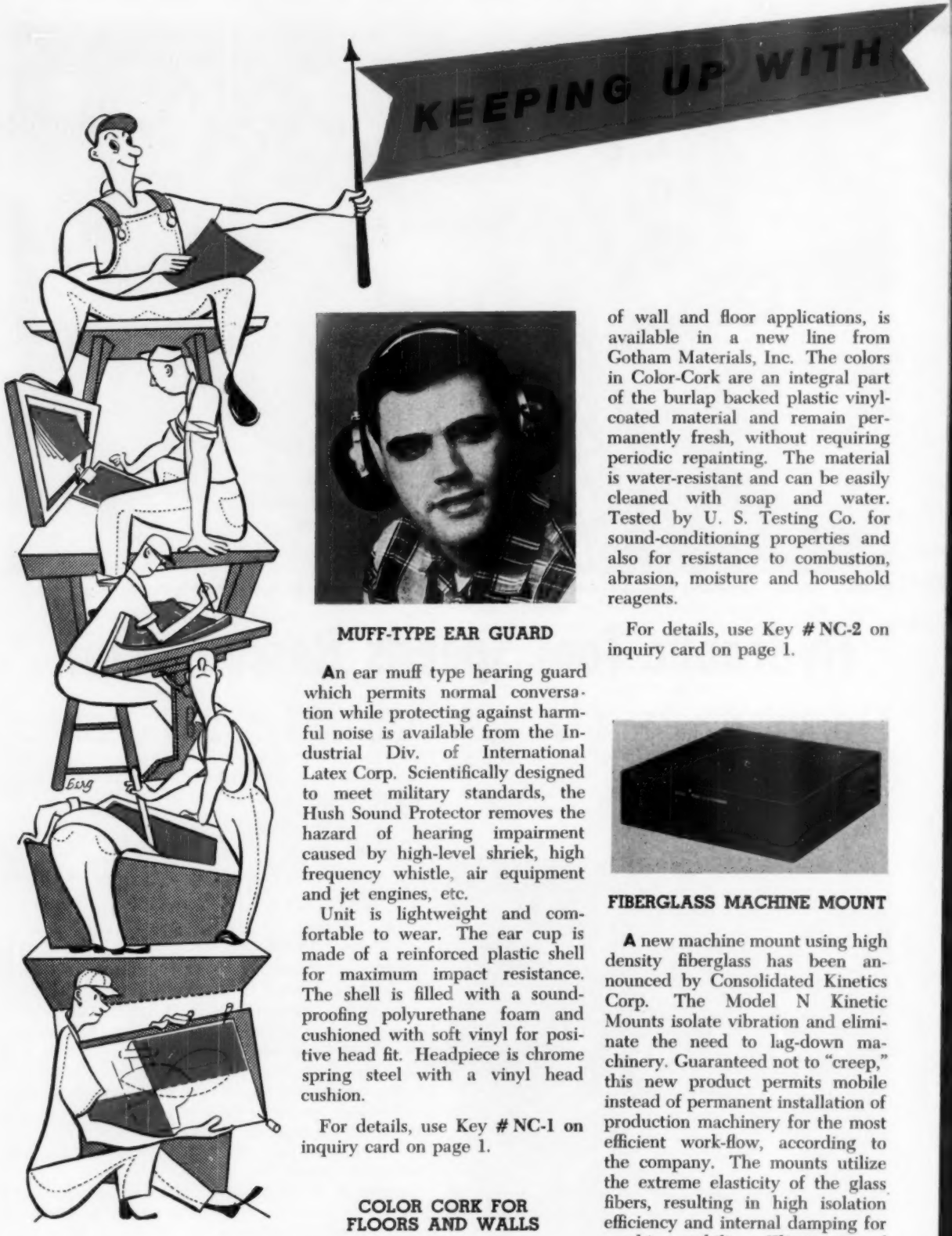
To dramatize the effectiveness of the rescue equipment, the "victim" was lodged in the driver's seat of a 1957 hardtop which had rolled over, crushing the roof, pinning the driver behind the steering wheel, and solidly jamming both doors. Cutting tools or torches are usually required for extrication of victims in such smash-ups.

Muscle Power Multiplied

In the mock rescue, however, the demonstrator simply fastened various attachments of the hydraulic power tool to the car frame, and began pumping on the handle of a small hydraulic pump. His muscle power was "multiplied" by an hydraulic ram and transmitted through a long flexible hose to the special attachment, as shown. The force exerted at that point—which can range up to 10 tons pressure—sprang the door loose from its jammed position. Other attachments were used to remove inside obstructions pinning the "victim."

Engineers of the manufacturer of the equipment said it is designed for many other rescue problems, as in mine cave-ins, roof falls, industrial accidents, fires, and explosions. Tons of power can be applied to lift, pull, push, or spread—with forces ranging from four tons for light duty to 10 and 20 tons for heavy duty.

Pictures by courtesy of Mine Safety Appliances Co.



NOISE CONTROL SERIES
Other articles June & July

MUFF-TYPE EAR GUARD

An ear muff type hearing guard which permits normal conversation while protecting against harmful noise is available from the Industrial Div. of International Latex Corp. Scientifically designed to meet military standards, the Hush Sound Protector removes the hazard of hearing impairment caused by high-level shriek, high frequency whistle, air equipment and jet engines, etc.

Unit is lightweight and comfortable to wear. The ear cup is made of a reinforced plastic shell for maximum impact resistance. The shell is filled with a sound-proofing polyurethane foam and cushioned with soft vinyl for positive head fit. Headpiece is chrome spring steel with a vinyl head cushion.

For details, use Key **# NC-1** on inquiry card on page 1.

COLOR CORK FOR FLOORS AND WALLS

Effective sound absorbing cork in a broad range of 16 colors designed to combine decorative and functional elements in wide variety of wall and floor applications, is available in a new line from Gotham Materials, Inc. The colors in Color-Cork are an integral part of the burlap backed plastic vinyl-coated material and remain permanently fresh, without requiring periodic repainting. The material is water-resistant and can be easily cleaned with soap and water. Tested by U. S. Testing Co. for sound-conditioning properties and also for resistance to combustion, abrasion, moisture and household reagents.

For details, use Key **# NC-2** on inquiry card on page 1.

FIBERGLASS MACHINE MOUNT

A new machine mount using high density fiberglass has been announced by Consolidated Kinetics Corp. The Model N Kinetic Mounts isolate vibration and eliminate the need to lag-down machinery. Guaranteed not to "creep," this new product permits mobile instead of permanent installation of production machinery for the most efficient work-flow, according to the company. The mounts utilize the extreme elasticity of the glass fibers, resulting in high isolation efficiency and internal damping for machine stability. Elimination of chatter in precision machines is now possible.

Impact and shock loads present in punch presses and similar equip-

NOISE CONTROL DEVELOPMENTS

ment are effectively isolated, the company states. The Model N Kinetic Mounts are used where built-in level control is not required. Available in three standard sizes to handle load ranges to 8,000 pounds per mount. Up to 90 percent savings in installation or relocation of machinery is obtained, the company claims.

For details, use **Key # NC-3** on inquiry card on page 1.

HEARING PROTECTOR FOR GROUND CREWS

Flexible plastic ear plugs which provide complete closure of the ear canal have been designed by the Rye Sound Corp. for ground crews working in or near areas of jet aircraft operation. Super-Ear Protectors reduce noise level about 30 decibles, or to about 1/1000th of the original intensity. A small tab facilitates proper fit and removal. Pairs are available in large and medium sizes, and are supplied in a permanent, protective carry case.

For details, use **Key # NC-4** on inquiry card on page 1.

JET SOUND SUPPRESSOR

A portable intake sound suppressor to reduce jet engine noise has been developed by Koppers Co., Inc. During tests of new jet equipment, unit cut the high-frequency whine of engines by up to 15 decibels. Decibel reduction is attained within 10 to 12 feet of the operation engine, area in which personnel suffer the most severe noise exposure. The device, said to be simple and inexpensive, is box-like in shape, but with the top and one end removed. It is constructed of special Soundmetal panels and is mounted on casters for easy movement. Engine is positioned just inside open end. Air circulated.

For details, use **Key # NC-5** on inquiry card on page 1.

SOUND DAMPENING DUCT

An all glass fiber duct for heating and air-conditioning is successfully controlling cross-talk and air rush noises. Because its fiber construction contains millions of tiny sound absorbing cells, the new product, developed by Gustin-Bacon Mfg. Co., offers as much as 2 to 3 db reductions per foot. One typical application of G-B Duct can be found in the St. Jude Medical Center (see illustration), where it complied with rigid specifications calling for virtual elimination of airborne noises between doctors' offices. During laboratory tests, even when subjected to air velocities of 15,000 fpm, G-B Duct showed no signs of flaking or loose fibers. Tests also show that it will withstand static pressure well above its recommended 1½". The new duct is encased in an air-tight vinyl vapor barrier sleeve that prevents condensation.

For details, use **Key # NC-6** on inquiry card on page 1.

AUDIO-ANALYZER

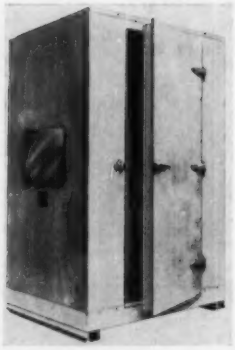
Development of its first diagnostic audio-analyzer, a single channel, 6-tube audiometer was announced by the Zenith Radio Corp. Unit, designed for use in hospitals, industry, schools, and hearing and speech centers, consists of a basic audiometer, known as the ZA-200, capable of measuring frequencies from 125 to 8000 cycles per second, including half octaves from 750 cycles per second up. The instrument can be expanded by adding the ZA-400, an electrically matched Speech Record Playback Unit and the ZA-402, a Diagnostic Desk Speaker which permits speech testing by either recorded or monitored live voice.

For details, use **Key # NC-7** on inquiry card on page 1.

MACHINE VIBRATION STOPPER

New SN Vibration Eliminators from the Vibration Eliminator Co. are coiled-spring unit isolators designed for static deflections up to one inch. Springs are rubber seated to prevent metal-to-metal contact, and are easily adjusted for leveling. All sizes are provided with lateral snubbing to prevent excessive movement at critical speeds. Company reports that units have been tested under a wide variety of machines including punch presses, compressors, pumps, fans, air handling units, etc.

For details, use **Key # NC-8** on inquiry card on page 1.



QUICK ASSEMBLY AUDIOMETRIC ROOMS

Manufactured of galvanized sheet metal and incombustible sound absorption retarding fillers, an audiometric room developed by the Acoustical Division of Elof Hansson, Inc., is said to meet with standard government, commercial and medical specifications. The room is made of 4" thick panels and doors. All joints are sound-tight and the entire room is mounted for rubber-in-shear vibration isolation. An electric phone and duct connections are supplied. Unique design permits complete assembly by two men in 15 minutes. Unit may be assembled and disassembled any number of times without loss of acoustical efficiency.

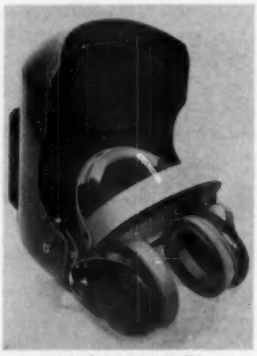
For details, use **Key # NC-9** on inquiry card on page 1.

Model 372-9A

NEW EAR PROTECTORS

Several new models of their well known Straightaway Ear Protectors have been introduced by David Clark Co., Inc. Emphasizing wearer comfort, without sacrificing high attenuation, model number 372–9A features a wide, extruded and gently flexible headband with low tension spring, and a weight of only 11 ounces. A neoprene band with nylon braided cover holds the easily removable ear seals in place. Filters of new, clover-leaf design, are reputed to trap considerably more noise than their predecessors. It is available with civilian or military type communication systems.

A lighter weight protector, Straightaway Model 372–20A weighs less than 8 ounces. These ear protectors feature slim silhouette domes, high attenuation and maximum comfort.



Model 372-25WH

Model 372–25WH integrates Straightaway Ear Protectors of the 372–20A type with a Fibre-Metal welder's helmet.

For details, use **Key # NC-10** on inquiry card on page 1.

ACOUSTICAL WALL FABRICS

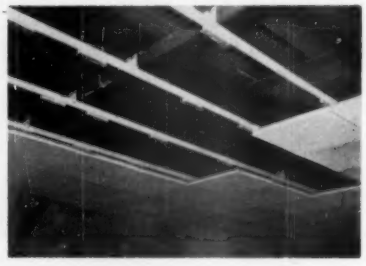
A new laminating process developed by B. F. Ruskin & Co., enables fabrics of cotton, rayon, silk, synthetics, woven krafts, burlaps, etc., to be backed with sound absorbent vinyl foam up to ¼ inch thick. The result is a decorative wall covering material that sharply reduces noises originating within the room or entering from the outside. The wall covering can be applied with any standard cellulose paste, or it can be tacked or stapled. The backing provides a multicellular sound "cushion" wherever it is installed, without the necessity of providing air spaces behind the material and without building frames on which to tack the wall covering. Backing is self-sealing, so that the outer face will not show nail or tack marks.

For details, use **Key # NC-11** on inquiry card on page 1.

INSERT-TYPE EAR PROTECTOR

Insertion-type ear protectors, developed by M. C. Rosenblatt, are said to be much less expensive over their useful life than the disposable kind, and may be used for a period of about six months before the compound of Vistenex/Isobutiline is exhausted. A little of this compound oozes out as the protectors are inserted in the ear canal to seal out noise. These inserts are claimed to provide a high degree of comfort with no possibility of irritation. Known as Silents 60, they are encased in a hygienic rubber membrane and are packaged, in sterile condition, in a plastic case.

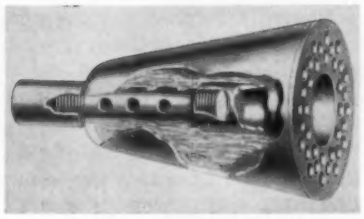
For details, use **Key # NC-12** on inquiry card on page 1.



FIRE RETARDANT ACOUSTICAL CEILING

An acoustical ceiling made by Armstrong Cork Co. and holding a two-hour fire-retardant rating from Underwriters' Laboratories, is reported to have received a new UL rating of four hours when combined with a cellular steel deck and a 2½" concrete floor assembly. The product, Acoustical Fire Guard, also received a one-hour rating for use with a wood floor-ceiling assembly, and an improved two-hour rating for protection against flame and transmission of heat. Product is said to have the same high sound-absorption as regular incombustible acoustical tiles.

For details, use **Key # NC-13** on inquiry card on page 1.



SOUND STIFLER

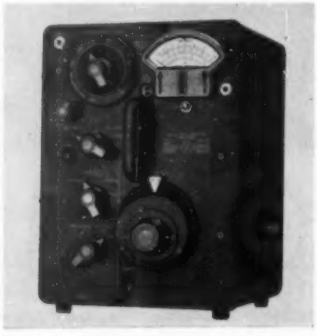
High frequency sounds in a plant can result in permanent ear injuries to employees. The Osborn Mfg. Co.'s Silenc-Air unit is designed to muffle noise and prevent such injury. The muffler is made of fabricated, reinforced plastic, is corrosion resistant, with no back pressure, and is reported to have proven highly effective in field use and installation. Easily installed on any ⅜" pipe, unit is said to be very economical.

For details, use **Key # NC-14** on inquiry card on page 1.

SOUND & VIBRATION ANALYZER

A portable, wide-range (2.5 cps –25 kc) Sound and Vibration Analyzer, type 1554-A, with a 10:1 span on each of four ranges, and featuring a ⅓-octave bandwidth (1.26:1), narrow bandwidth (8%, constant with frequency) and all-pass response, is available from General Radio Co. The instrument can be used to measure not only line (single-frequency) components, but also continuous (noise) components.

The instrument's narrow bandwidth is wide enough to embrace the small frequency fluctuations (or *wow*) arising from normal variations in speeds of engines, machines and appliances; 40-db discrimination obtains at one octave from selected frequency. The alternate, ⅓-octave bandwidth is available, for the first time, at low vibration frequencies.



The analyzer is a tunable voltmeter whose bandwidth is a constant percentage of the center frequency. It consists of two *RC*-tuned selective amplifiers, connected in cascade, which can be either synchronously or stagger-tuned to produce narrow or ⅓-octave bandwidths, respectively. Additional instrument features include miniaturized construction with eleven transistors and four subminiature tubes, and shock-mounted amplifier boards. Input to the analyzer can be from a sound level meter, vibration meter or microphone. The analyzer dial can be driven from a G-R Graphic Level Recorder for the automatic analysis of sound spectra.

For details, use **Key # NC-15** on inquiry card on page 1.

ACOUSTICAL PARTITIONS

A complete line of movable wall and portable partitions for the effective control of noise is available from GR Products, Inc. Soundex walls, up to 10' in height, consist of sturdy gypsum boards placed in the center of a panel. This provides a sound stop or solid core which also acts as a diaphragm. 1¼" layers of fiberglass are placed on each side of the baffle to absorb sound as it passes into the the wall or vibrates off the baffle. Sheets of tempered prestwood "skin" are placed over both sides of the panel.

Budgex walls have the same construction except that their non-perforated surfaces make a center baffle unnecessary. Each type of wall is equally effective in sound control, depending on the problem to be solved. The walls are decorative as well as functional.

For details, use **Key # NC-16** on inquiry card on page 1.

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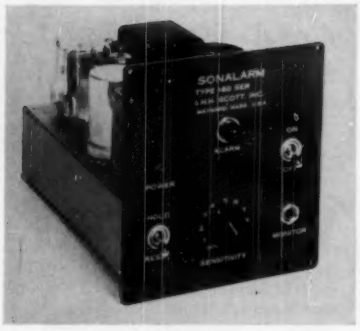


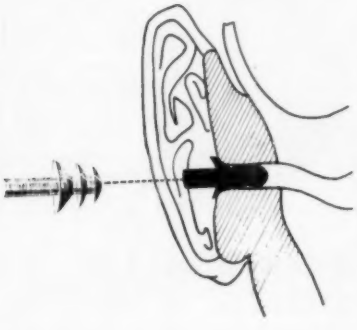
SOUND PRESSURE ALARM

A new Sonalarm, Model 160, which operates relay contacts (N. C. or N. O.) at pre-set sound or vibration level, has been announced by H. H. Scott, Inc. The standard model operates at 70 to 100 db sound pressure level, and has differential of 2 db. Electronic delay prevents trip on single impacts; there is an audio output jack for earphone or power amplifier. Applications for the new unit are many: product testing for noise level, intrusion alarms, statistical data gathering, process or machine monitor and control.

For details, use **Key # NC-17** on inquiry card on page 1.

UNIVERSAL FIT EAR PLUGS

An inexpensive new ear plug has been developed by Sigma Engineering Co. Tradenamed Com-Fit, the ear plug is molded of a special-formula silicone rubber, and is unusually durable and pliable, nontoxic, nonallergenic and resistant to ear wax and skin oils. It may be boiled and sterilized for cleanliness and interchange among wearers. Made with a triple flange to guarantee complete sealing of the ear canal, the plugs come in one universal size designed to fit all ear openings. White noise attenuation of these ear plugs is said to equal 36.3 decibels. Frequency versus attenuation charts indicated a maximum attenuation of 63 decibels at the frequency of 4000 cycles per second with equally impressive attenuation at various other levels.



For details, use **Key # NC-18** on inquiry card on page 1.

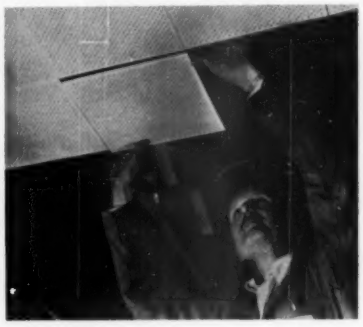
NOISE LEVEL INDICATOR

A new instrument announced by Mine Safety Appliances Co., the M-S-A Noise Integrator, is designed to provide accurate integrated or average noise level readings in areas of rapidly fluctuating sound. The "integrated" reading indicates total noise exposure in time units measured during five-second cycles. The "average" reading provides a continuous indication of the average noise level. The new instrument is used in conjunction with

the M-S-A Noise Survey Meter. When connected by a special jack to the meter, the Integrator collects the noise-generated signal for five seconds, during which time the meter reading increases to a point which is proportional to the integrated sound. A weighted frequency response signal is fed into the Integrator from the Survey Meter, which serves as microphone pick-up and pre-amplifier.

After computing a "time versus total noise" value, expressed in "dose" units, it is possible to predict anticipated hearing loss resulting from a five-year exposure to particular sound levels. For a reading of average noise levels, the Integrator is switched to that function. The meter pointer slowly and continuously follows the average of the noise levels received, with an averaging time constant of three seconds. This gives a frequency-weighted sound pressure level reading.

For details, use **Key # NC-19** on inquiry card on page 1.



NEW SOUND-CONTROL TILE

Johns-Manville has developed an acoustical panel which it claims is the only metal-faced sound absorbing tile that can be either cemented in place or installed by concealed suspension systems. The metal facing is thin-gauge aluminum with a white, baked-enamel finish. The base material is a rigid, dense, multi-cellular board that is formed from expanded perlite particles, mineral binders and fibers. Solo-Tile is exceptionally easy to clean with water and any good detergent. Product is incombustible.

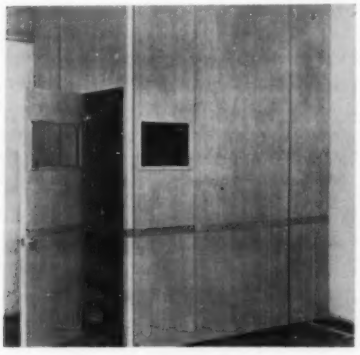
For details, use **Key # NC-20** on inquiry card on page 1.

SOUND BARRIER WITH COMMUNICATION EQUIPMENT

The 260-C sound barrier with communication equipment gives complete protection against hear-

ing impairment while maintaining audible communication under high noise levels. Developed by Willson Products Div., it is equipped with vinyl cushions and carbon microphone in a mouth cup, and is designed to attenuate harmful high frequency noises encountered in both industry and the military. The fluid filled cushions, providing ear muff-type protection, achieve an effective noise seal because the fluid easily conforms to irregular contours of the wearer's head. No excessive pressure on the cups is necessary to achieve a complete noise seal. Cushions are attached to cups by a rubber rim and are easily replaceable on the job for cleaning and sterilizing. They are unaffected by extremes in temperature and pressure.

For details, use **Key # NC-21** on inquiry card on page 1.

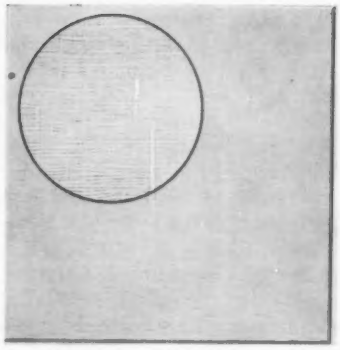


NOISE REDUCTION PANELS

A new architectural panel placed on the market by the Acoustical Division of Elof Hansson, Inc., is said to have excellent sound absorption qualities, and to prevent sound transmission to a degree equal to a high grade dry wall partition. Panel has a light color veneer type finish with scuff resistant lacquer coating.

Thickness of the panel is 2⅜" and the standard size 4' x 8'. It can be cut with conventional carpenter tools and installed by using either wood studs with wood moldings or a simple steel partition system supplied by Elof Hansson. The panel is designed for separation of and reduction of noise in offices, factories, schools, etc.

For details, use **Key # NC-22** on inquiry card on page 1.



WASHABLE ACOUSTICAL TILE

A plastic-covered, acoustical ceiling tile with unusual washability has been introduced by Celotex Corp. The company reports that the plastic facing of new Sanitone is pigmented for permanent bright-whiteness and high light reflection, and need never be repainted. This incombustible fiber tile is said to be especially useful for areas with high cleanliness requirements, such as kitchens, hospitals, and rooms containing delicate machinery or office equipment, since it may be washed repeatedly and is completely non-dusting.

For details, use **Key # NC-23** on inquiry card on page 1.

EAR GUARDS FOR HARD HAT

A new model of Straightaway Ear Protectors, especially made to be worn with any hard hat, has been introduced by David Clark Company, Inc. It is designed to attenuate extremely high and dangerous sound levels, yet to permit normal conversation. Model 372–20 HH includes a smooth, flexible cloth harness, placed between the webbing and the top of the hard hat, fitted domes, with extremely comfortable vinyl foam ear seals, and a chin strap. Also available with civilian or military type communication systems.

For details, use **Key # NC-24** on inquiry card on page 1.

NEW SOUND SHELTER

A sound shelter featuring portability and low price has been introduced by Maico Electronics, Inc. The unit is designed to serve hospitals, schools and other areas where acoustic protection is needed. Shelter offers satisfactory audiometry in environmental noise to 65 decibels. Unit moves easily and quietly on rubber-wheeled, ball-bearing, swivel casters. Interior easily accommodates a patient seated in an armchair. It includes a complete jack panel for audiometer accessories and a glass observation window.

For details, use **Key # NC-25** on inquiry card on page 1.

SOUND CONTROLLED PHONE BOOTH

A new type of telephone booth featuring high acoustic efficiency, steel clad construction and an attractive finish has been introduced by Industrial Acoustics Co. The Noise Shield booth is made to accommodate pay telephones, wall telephones, handset telephones and intercom equipment in a controlled acoustical environment, providing ease of conversation in noisy locations and privacy of conversation where desired. Available in a wall attached booth and a standing floor booth for installation in factories, public buildings, hospitals, terminals, etc.

For details, use **Key # NC-26** on inquiry card on page 1.

LIGHTWEIGHT EAR PROTECTOR

Quiet-Ear, a new hearing protector distributed exclusively by Bausch & Lomb, and developed by RCA, uses neither bulky absorbing materials, nor excessively large sealing shells. Applicable anywhere, where noise becomes a hazard or a nuisance, this lightweight, sanitary and inexpensive ear guard offers protection from noise in a wide variety of operations: jet airfields and carrier flight decks, diesel engine generator houses, bioacoustic testing laboratories, artillery or missile launching sites, steel rolling mills, punch press machinery, rock drilling, riveting, etc.

For details, use **Key # NC-27** on inquiry card on page 1.

NOISE REDUCING COMPOUND

A viscoelastic material which, when sprayed or trowelled onto metal plate, drastically reduces structurally borne noise and vibration has been announced by The Korfund Co., Inc. The compound renders metal plate acoustically equivalent to a sheet of cork. Designated Vibrodamper Compound, this damping material solves the problems of noise transmitted along structural paths through sheet metal, and of the drumming noise created by vibration or thermal movements of metal plates.

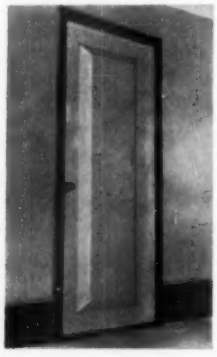
It is said to be a highly effective, economical treatment for sheet metal applications such as air ducts, plenums, curtain walls, business machines, computers, transformers, metal doors, pumps, fan scrolls, ship's bulkheads, vibratory feeders, etc. The company also holds its product to be considerably more effective than other damping materials, such as asphalt felt, bituminous mastics (automotive undercoatings), glass fiber blankets, and metal tapes. The compound is handled like a coat of paint, dries to a smooth, attractive finish, is nontoxic and nonflammable. (Also available in fire-resistant form.) It is resistant to alkali, grease, gasoline, and aliphatic oils, is unaffected by ozone or sunlight, and does not become brittle or change in any way with age.

For details, use **Key # NC-28** on inquiry card on page 1.

MOLDABLE EAR PLUGS

Self-molding, pliable, self-sealing properties of the new Pep Ear Defender, available from Protecto Ear Plugs, Inc., eliminate fitting problems and make reinsertion unnecessary. The malleable ear insert fits all ear canals regardless of shape or size. Its cohesive force seals the ear canal and creates a barrier against harmful noises. The material is free of toxic or injurious agents and cannot harm the ear drum or canal. It is suitable for such noisy operations as work with riveting machines, power saws, milling machines, power hammers, pneumatic tools, etc.

For details, use **Key # NC-29** on inquiry card on page 1.



SOUNDPROOF LOUVER DOORS

A louver door which combines the qualities of a first class soundproof hollow metal door and a sound trapped air transfer duct has been designed by the Acoustical Division, Elof Hansson, Inc. In private offices, conference rooms, hospital rooms and numerous other places, use of this door permits air passage without sacrificing privacy of speech. Sound insulating door is furnished complete with door frame, pneumatic and aluminum adjustable gasketing and adjustable threshold sealing mechanism.

For details, use **Key # NC-30** on inquiry card on page 1.

NEW AUDIOMETRIC ROOM

An entirely new audiometric room, for testing a person's hearing, has been designed and perfected by the Metal Products Division of Koppers Co., Inc. The audiometric room, which can be assembled without any special tools, will be shipped in only 24 to 36 components, depending on the model. Heretofore, similar rooms now in use had an average number of 75 parts and had to be assembled by technicians, the company says. The units will be offered in four models, largest of which will be 96 inches wide, 96 inches deep and 93 inches high. This is roomy enough to accommodate three subjects at one time. The test enclosures will guarantee a noise reduction of up to 55 decibels, depending on the octave band.

For details, use **Key # NC-31** on inquiry card on page 1.

Plant Engineering
(from page 42)

Greensboro and managed by Robert E. Zimmerman, will feature more than 300 displays of equipment, services, and supplies from the foremost manufacturers in America. The seminars and show will again cooperate in opening and closing so that only one event will be scheduled at a given time.

The registration fee for the three-day program will be $20.00. Arrangements may be made to attend any one day's program or the banquet for a special fee. The chairman has urged all interested attendees to pre-register in order to avoid delay in attending opening seminar sessions. Further information is available from: Industrial Experimental Program, School of Engineering, N. C. State College, Raleigh, N. C.

Public Health Meeting

The 88th annual meeting of the American Public Health Association, scheduled for the Civic Auditorium in San Francisco October 31–November 4, will be the largest gathering of public health specialists ever held on the West Coast.

Malcolm H. Merrill, M.D., president of the association and California's director of public health, said that among the 5,000 men and women expected to attend are persons who plan and direct programs of official and voluntary health agencies on national, state and local levels in all parts of the Americas and abroad.

Scientific sessions and exhibits will cover a wide variety of health programs and research development, Dr. Merrill said. Registration will be open to non-members as well as to members of the association, which is the largest professional society of public health specialists in the Western Hemisphere.

Major sessions will include an opening symposium on man and his changing environment and a closing symposium on present status and future directions of work in malignant diseases. Other features will include presentation of the highest annual awards in public health—the Albert Lasker Awards of the American Public Health Association and the Sedgwick Memorial Medal.

The association's 14 sections are developing scientific sessions to hear reports on current work in their respective fields. In addition, sections are planning joint sessions for discussion of topics of broader interest and implication. The sections represent dental health, engineering and sanitation, epidemiology, food and nutrition, health officers, laboratory, maternal and child health, medical care, mental health, occupational health, public health education, public health nursing, school health and statistics.

Areas Covered

Areas to be covered in the program include genetics, rehabilitation, adolescent development and problems, medical care for children, accident prevention among children, lead poisoning, dental programs for children, costs of pharmaceuticals, medical care and the health department, medical group practice, service to patients in the home, occupational health service in medical care and tuberculosis eradication.

Also mental health service in schools, health effects of air pollution, cardiovascular diseases, syphilis, polio vaccines, teaching of epidemiology in medical schools, sanitation in the institutional environment, construction of public health facilities, community education on radiological health, food additives, evaluation of community mental health programs, fungal infection, fluorescent antibody technics, eye health of children, infant feeding, impact of workmen's compensation laws on medical care and rehabilitation, radioactive waste in the marine environment, noise and health, agricultural chemicals as a public health problem and rabies and bats.

GETS-A-LITE GUARD and GUIDE
Quickly and Easily Installed by Anyone — No Tools Needed!

- Simply slip GETS-A-LITE GUARD AND GUIDE over the fixture, as illustrated.
- Made of indestructible spring steel wire. Nothing to break, get out of order or replace. Will last indefinitely.
- Once installed, GETS-A-LITE GUARD AND GUIDE is NEVER removed.
- Nothing to unlock, fuss with or lock, when changing lamps.
- GETS-A-LITE GUARD AND GUIDE actually steers lamp into socket, enabling maintenance man to change lamp in 10 seconds!
- Available for 40 watt and 100 watt fluorescent lamps.

GETS-A-LITE Company—Dept. SM-80
3865 N. Milwaukee Ave., Chicago 41, Illinois

(For details, use Key # U-15 on card on page 1)

Your insides feel like a SAND STORM?

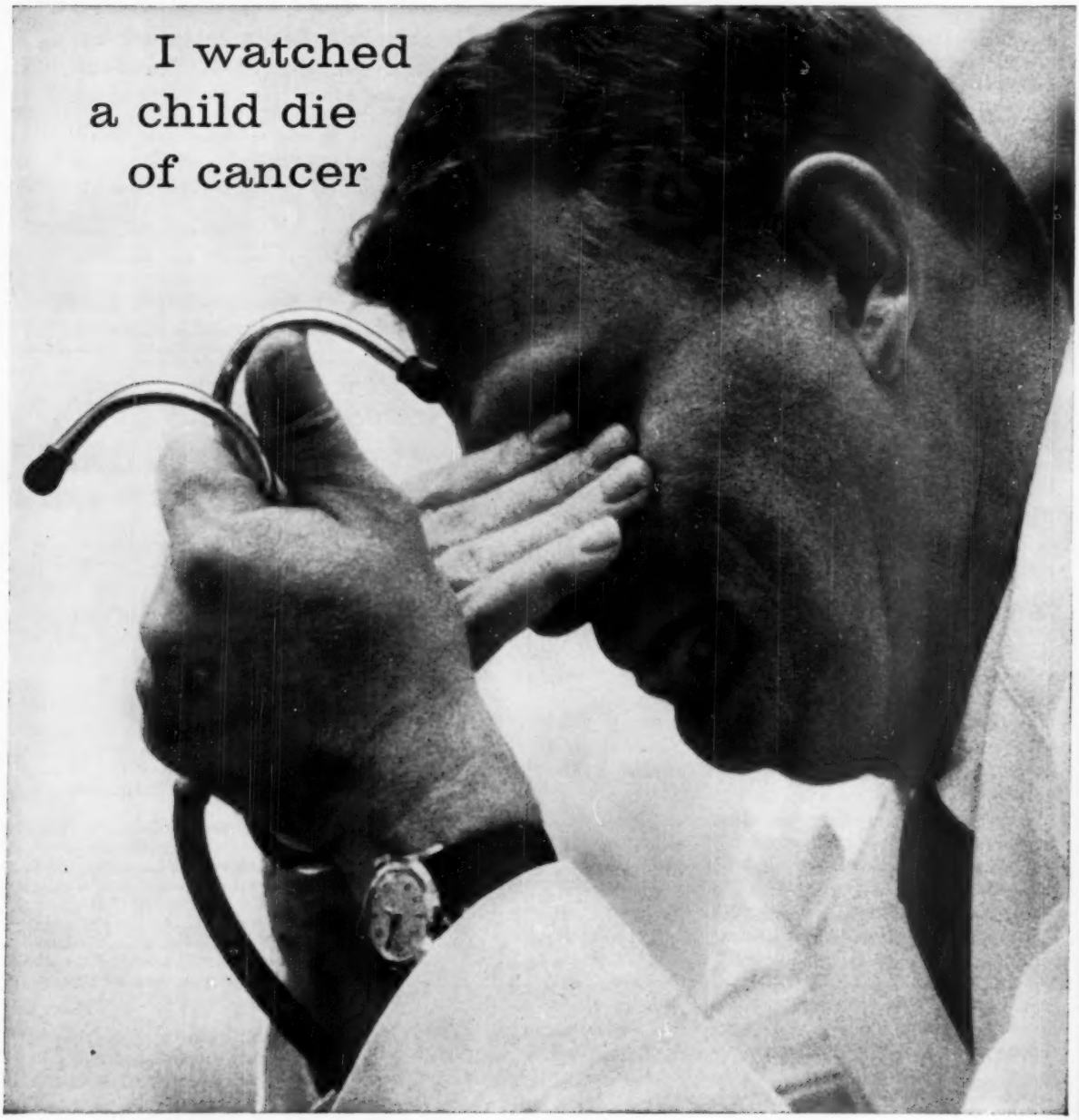
YOU NEED A DUPOR AUTOMATIC
Water-Cooled Respirator

Sponge filter saturated in cool, clear water provides moist air for comfortable breathing. Ideal protection against dust, fumes, smoke, paint spray. Full panorama visibility. Can be worn with goggles or glasses. Work refreshed, order a water-conditioned respirator today! Sample, $2.25 postpaid.

H. S. COVER, Dept. 809
South Bend 14, Indiana
"Respirators for Industry since 1894"

(For details, use Key # U-9 on card on page 1)

I watched a child die of cancer



SHE WAS too weak to speak . . . this child of eight. But the words were plain to see in her eyes:

"Can't you make me well again, Doctor?"

It's terribly hard . . . even for a doctor who sees tragedy enough . . . to watch a child fade from the sunlight of life—a victim of cancer.

We *had* succeeded in prolonging her life by many months—thanks to recent advances in the treatment of leukemia.

But that's not enough! Cancer is a disease that ranks today as the Number 1 disease-killer of children. We can . . . we must . . . find ways to battle it, and *win over it*.

Research, supported by the American Cancer Society, is striving tirelessly towards that goal.

Let's give . . . boldly, generously to the American Cancer Society Crusade . . . and help eliminate this mortal enemy which will take the lives of more than 250,000 Americans this year alone.

AMERICAN CANCER SOCIETY

Send your gift to CANCER in care of your local post office.

What's Going on Here?

The protective power of an industrial barrier cream is shown in this dramatic photograph supplied by the cream manufacturer. These hands were coated with a barrier cream, widely used in American industry as a protection against irritants. Then a bottle of pure hydrochloric acid was slowly poured into the palm, running down and around the fingers before splashing off. During part of this test, the hand was clenched and unclenched to show the resilience of this "invisible glove." After washing, inspection of the skin revealed no trace of burning or blistering according to the manufacturer, whose cream is made in several types to provide workers with protection against hazards of skin-damaging chemicals and irritant agents.

Photo courtesy, Ayerst Laboratories.

Silicones Aid Dust Control

High temperatures and corrosive atmospheres no longer limit the use of fabric filters in dust collecting applications. Bag-type dust collectors made from glass-fiber treated with silicones will operate continuously at temperatures up to 600 F. Manufacturers of these gas-stream cleaning devices indicate that the heat-stable silicone treatment provides new operational freedom by protecting woven glass fiber filters from the deteriorating effects of highly acid or alkaline gases, dust deposits, moisture and mechanical action. Silicone treatment has increased the life of glass-cloth filter bags exposed to such service conditions by as much as 25 times . . . from an average of six weeks to as long as three years' reliable operation.

Silicone treatment also makes it easier to clean filter bags . . . a maintenance advantage. The durable lubricating characteristics typical of silicone finishes reduce filament breakage and abrasive wear of glass fabric. Efficiency of mechanical shaking and reverse air flow cleaning methods are said to be increased while damage to glass fibers is reduced to a minimum.

Safety Data Sheet on Chlorine

SD-80, on Chlorine, has been added to the list of chemical safety data sheets published by the Manufacturing Chemists' Association.

SD-80 was produced by MCA'S General Safety Committee with the cooperation of the Chlorine Institute. The 25-page booklet covers properties; hazards; engineering control of hazards; employee safety; emergency measures, including the control of leaks; handling of shipping containers, including cylinders, ton containers, tank cars and tank barges; waste disposal, and medical management.

Copies of SD-80, Chlorine, are available at 50¢ each from the Association, 1825 Connecticut Ave. N.W., Washington 9, D. C.

Babbitt *Adjustable* **SPROCKET RIM**
with Chain Guide
CHANGES THAT DANGER ZONE TO A SAFETY ZONE

The distance between the floor of your plant and your overhead valves is a DANGER ZONE when piled up boxes or even ladders are used to reach the valves.
Turn it into a SAFETY ZONE — equip your overhead valves with Babbitt Adjustable Sprocket Rims with Chain Guides.

- They simplify pipe layout.
- They fit any size valve wheel.
- They are easy to install and operate.
- They operate any valve from the floor.
- They save time and money.
- The first cost is the only cost (no maintenance).
- They are packed completely assembled (one to a carton), with easy-to-follow instructions.
- A hot-galvanized rust proof chain is available for all sizes.

Babbitt Adjustable Sprocket Rims with Chain Guide are carried in stock by most mill supply houses. If your supplier does not carry them, contact us direct.

Babbitt STEAM SPECIALTY CO.
11 BABBITT SQUARE, NEW BEDFORD, MASS., U.S.A.
(For details, use Key # U-10 on card on page 1)

The appointment of *William H. Guild* as Vice President in charge of sales for the *Automatalite Division, CARPENTER MFG. CO.* has been announced by H. S. Bird, President and Chairman of the Board. Mr. Guild's election to the Board of Directors is also announced at this time. Mr. Guild has been with the emergency lighting manufacturer for three years as Executive Assistant to the President. The Automatalite Division produces battery-powered emergency lights now required by law in many states and used heavily by industry for personnel safety.

The appointment of *Robert W. Gardner* as its exclusive sales and service representative in the Columbus, Ohio territory has been announced by *LEWIS-SHEPARD PRODUCTS, INC.*, producers of electric powered fork lift trucks and related materials handling equipment. Complete sales and service facilties for Lewis-Shepard customers in the Columbus, Ohio area will be maintained at: Gardner's Sales and Service, 4029 East Main St., Columbus 13, Ohio.

Gordon S. Bodek, Executive Vice-President of *BOBRICK DISPENSERS, INC.*, of New York and Los Angeles, was elected to the post of District Director of the National Sanitary Supply Association at the 37th Annual Convention and Merchandise Exhibition. Mr. Bodek will be in charge of District Number 6, comprising the states of California, Nevada, Oregon and Washington.

In line with its planned program of successive expansion, *COMMERCIAL PLASTICS & SUPPLY CORP.* of New York City has just opened its seventh sales and service branch and warehouse at #29 Fitch Street in New Haven, Connecticut. *Herbert Weil* will serve as general manager.

The setting of standards for sound-insulating doors is the first object of a new association, *The Acoustical Door Institute*, founded at a Chicago meeting of acoustical door manufacturers. The standards are expected to be invaluable for both users and makers of these doors.

Charter members of the new Institute are *Dusing and Hunt, Inc.*, of LeRoy, N. Y.; *Hardwood Products Corp.*, Neenah Wisc.; *Jamison Cold Storage Door Co.*, Hagerstown, Md.; *Roddis Plywood Corp.*, Marshfield, Wisc.; *Rysden Products Co.*, Chicago, Ill.; and *United States Plywood Corp.*, New York City. Membership in the new Institute is open to sound reduction door makers in the United States and Canada.

At its founding meeting, the membership instructed its officers to establish a suitable laboratory where sound insulating doors, manufactured by Institute members, may be tested in accordance with official Institute standards. The officers were charged with the preparation, at the earliest practicable time, of standardized testing procedures.

President of the new Institute is *Selden Spencer*, sales manager of Hardwood Products. Secretary is *William Roddis*, secretary and chief engineer of Roddis Plywood. Treasurer is *Patrick J. Duffy*, sales manager of Jamison. Further information about the Acoustic Door Institute is obtainable by writing Spencer.

Robert A. Foster, formerly a branch manager, has been named sales manager of the *Industrial Division* of the *BOYER-CAMPBELL CO.*, Detroit, according to an announcement by J. H. Hurl, Vice President and General Manager of that industrial supply house and manufacturer of Industrial Safety Equipment.

Pagel Safety Products, Inc., of Milwaukee has been named distributor for MoPeCo ventilating heaters, blowers, tent heaters and transformer hoists. The announcement was made in Denver by L. R. Morrision of Morrision-Pelsue Company, manufacturer.

WILLSON PRODUCTS has won a top award for its sales letters included with Willson's new "Headliner" Program. The letters were entered in competition with 217 others in the Rockford Ad Club's annual advertising contest.

Willson's winning letters were written by Willson Sales Promotion Specialist *Robert S. Moore*, working under Merchandising Manager, *A. M. Anderson* and in conjunction with Willson's advertising agency, Howard H. Monk and Associates. The letters are designed to secure closer contacts between Willson counselor-representatives and industrial safety directors. The "Headliner" Program is a series of surveys, recommendations and procedures that relate cost savings, equipment and installation of a complete plant safety program. This comprehensive approach to industrial plant safety equips Willson representatives as professional safety counselors.

Aiken W. Fisher, president of *FISHER SCIENTIFIC*, manufacturer-distributor of laboratory apparatus and reagent chemicals, announced that his firm has acquired *Industrial Scientific, Inc.* as a wholly-owned subsidiary.

Industrial Scientific, founded 40 years ago in Fort Worth, Texas, has branches in Fort Worth, Houston and Odessa, Tex., and a sales office in Baton Rouge, La.

The former owners of Industrial Scientific, *B. H. Wilson* and *Roy O'Neill*, have joined Fisher's management team, the latter as general sales manager. The vice-president and manager of Fisher/Philadelphia, *Frank Donics*, becomes general manager of Fisher's new Southwestern Division. No other changes in personnel are contemplated.

William J. Carroll, President of the *GAMEWELL COMPANY* of Newton, Mass. has announced the promotion of *W. Ben Flanigin* to Vice President. Mr. Flanigin has been with Gamewell since his release from the U. S. Navy in 1946. He was a Sales Engineer in the firm's Chicago office, and has been successively promoted to District Manager, and Eastern Regional Sales Manager. In 1959, he was promoted to General Sales Manager at headquarters in Newton Upper Falls, Mass.

Two new appointments in the sales area of *ANSUL CHEMICAL CO.*, Marinette, Wisconsin, have been announced by President *Robert C. Hood*. *Robert E. Sexmith* has been named sales manager of the company's Fire Equipment Division and *Jay H. Jarrett* becomes sales manager of the Refrigeration Products Division.

The appointment of *Everett L. Decker* as sales manager of the *Fire Apparatus Division* of *WARD LAFRANCE TRUCK CORP.* has been announced by Phil A. Jenks, Executive Vice President. Mr. Decker's appointment marks his return to WARD LaFrance after two years with

American LaFrance, Division of Sterling Precision Corp. He had previously been employed by WARD LaFrance for 12 years as service manager, regional sales manager and sales manager.

E. M. Witzel has been appointed Eastern District Sales Manager for the *E. D. BULLARD CO.* Joint announcement of this appointment was made by E. W. Bullard, Jr., Sales Vice President, and Paul O'Donnell, Sales Manager, at the headquarters office in Sausalito, Calif. Witzel joined the company in 1958 and has been a member of the California Sales Staff. His duties will include the direction of sales of Bullard safety products through distributors in 10 Eastern States. Mr. Witzel's headquarters will be in New York City.

The Charles D. White Co., 450 Western Avenue, Boston, Mass., has been appointed to represent the entire line of Dynaray emergency lighting equipment, it was announced recently by Mitchell L. Grishaver, Sales Manager of the *Dynaray Division of ELECTRO POWERPACS, INC.* The Charles D. White Company will represent Dynaray throughout the New England States, with the exception of Connecticut.

Nelson W. Hartz has been appointed director of marketing for all industrial operations of *MINE SAFETY APPLIANCES CO.*, it was announced by E. W. Merry, executive vice president. At the same time, *John P. Sherwin* was named sales manager of the company's Technical Products Divison, succeeding Mr. Hartz in that post.

Mr. Hartz joined the company in 1934, and has made notable contributions to MSA developments in industrial and air pollution instrumentation. He was named product line manager for instruments in 1947, and sales manager for Technical Products in 1957.

Mr. Sherwin joined MSA in 1946 as an instrument field engineer. He was named assistant sales manager of Technical Products in 1957.

In line with its long-range diversification and expansion program, *THE FLINTKOTE CO.* has announced plans to build a plant in Vancouver, British Columbia, Canada, to manufacture Flintkote's complete line of resin-asbestos and vinyl floor tile.

Frank J. Tucker was named Industrial Sales Manager, *Thermoid Div., H. K. PORTER COMPANY, INC.* Mr. Tucker was formerly Central Regional Manager for Thermoid. In his new position he will be responsible for the marketing and sales of industrial rubber products.

Mr. Tucker, 52, joined the Pioneer Rubber Company in 1930, prior to its incorporation into H. K. Porter Company, Inc. He was promoted to district manager in 1936 and in 1959 became Central Regional Manager.

I. J. Harvey, Jr., chairman and chief executive officer of *THE FLINTKOTE CO.*, a leading manufacturer of building products, has announced acquisition of *The Sealzit Co.* of Riverside, Calif. The Sealzit Company is the manufacturer of Sealzit guns and accessory equipment widely used in the application of resins, binders and plastics. A gun especially designed for Flintkote is used for application of commercial and industrial roofing, and may be used on flat and uneven surfaces.

H. T. Florence, Executive Vice President & General Manager, has announced that all sales activites of *THE CLEVELAND CRANE & ENGINEERING CO.* will be consolidated into one Sales Department under *Robert G. Birkin*, General Sales Manager, and *J. G. Frischkorn*, Sales Manager.

MACWHYTE WIRE ROPE CO. has announced the appointment of *Russell F. Hendrick* as Assistant Pacific Coast Manager. Mr. Hendrick has been associated for many years with the wire rope industry, both with a manufacturer and more recently conducting his own distributorship. He will now headquarter at the Company's offices in San Francisco and will assist Fred M. Sime, Pacific Coast Manager, in the thirteen Western and Pacific Coast States.

SPECO, INC., Cleveland, announces completion of a 30,000 sq. ft. addition to its chemical division plant. This brings the divison's total floor space to 80,000 sq. ft., including adjacent warehouses for the company's moisture absorbents and ice and snow-melting chemical.

BARBER-COLMAN CO., Rockford, Ill., will expand plant facilites to meet increasing demands for their automatic controls, air distribution products, overhead doors, and industrial instruments. The addition to the Park Plant, situated on fifty acres at the northern edge of Rockford, will increase the present plant area by approximately 170,000 square feet.

CENTRAL SCIENTIFIC CO., Chicago, has moved two of its branches to new and larger quarters, it was announced by L. A. Miller, director of marketing. The Cenco branch formerly in Cambridge, Mass., has been relocated in a new building at 160 Washington St., Somerville, Mass.

In Houston, Texas, Central Scientific has constructed a new building at 6610 Stillwell St. Mailing address for this branch, however, will be P. O. Box 26055, Houston 32.

Safety Appointments

M. R. Batche has been appointed manager of safety for all manufacturing plants of The Firestone Tire & Rubber Company, it was announced by J. A. Meek, vice president. Mr. Batche started with Firestone in 1934 as a technician with the Xylos Rubber Company. He later became assistant plant foreman and in 1945 was named safety and service manager for the Xylos plant. He joined the company's safety department in 1955.

Born in Jamestown, Pa., Mr. Batche attended the University of Akron. He is a past chairman of the rubber section, National Safety Council, and the McKinley chapter of the American Society of Safety Engineers. He also belongs to the Ohio Society of Safety Engineers and the Ohio State Safety Council.

Employee Guides On Radiation Safety

A comprehensive, non-technical series of articles on radiation, called "**Question,**" has been prepared by the R. S. Landauer, Jr. & Company, a professional service for radiation safety. According to Robert S. Landauer, Jr., company president, "It is our hope that these articles will serve as an educational tool for personnel engaged in radiation work and should be useful in meeting radiation training requirements. The series is a free service to all Landauer subscribers. Sample copies will be sent to others interested, without charge."

"**Question**" discusses the nature, the use, the detection and the control of radiation. All articles are written in an informal style by health physicists in the various fields of radiation. Each is illustrated to ease the reader through its pages.

Requests for free copies of "**Question**" should be sent to: R. S. Landauer, Jr. & Company, 3920 216th Street, Matteson, Illinois.

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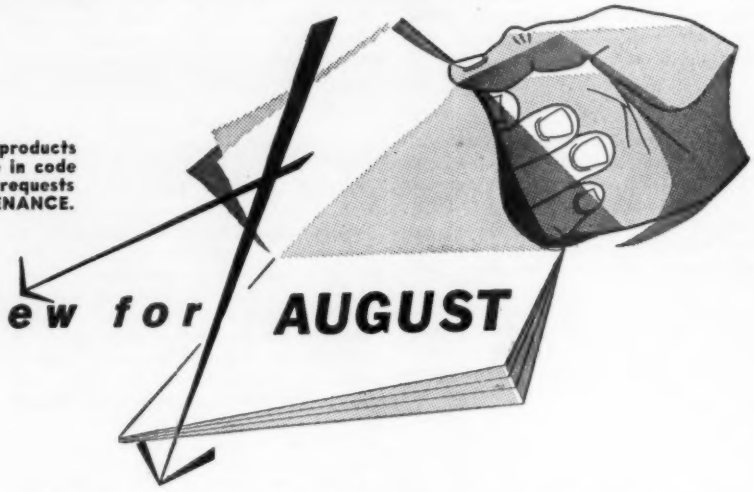
To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for AUGUST

FOLDING FIRE ESCAPE

(Use Key # 793 on Inquiry Card on page 1)

AN ALL-ALUMINUM ladder which, in its folded position, resembles a drain spout, has been developed by Coolman Industries to provide egress from residential and small commerical buildings in ccse of fire. A 2"-square extrusion forms the cover and one leg of the escape unit which fastens permanently to the side of the building. At the touch of a release button, located near a second or third story window, ladder opens to its full width. Another release button is located on the first floor to guard against all contingencies. Escape is equipped with non-skid treads, and is both burglar-proof and weather resistant.

NEW SAFETY EYEWEAR

(Use Key # 794 on Inquiry Card on page 1)

ACETATE FRAME safety glasses especially designed to meet current demands for simplifying inventory stock as well as fitting the average employee, are available in a new line from Bausch & Lomb. Frame features a one-size saddle bridge for all three eye sizes, and is available in two popular colors. Saddle bridge construction is designed to provide a pressure-free fit for a large number of workers. Shallow-form permanent nose pads combine with the eyewire stock for a maximum surface-to-face contact which distributes weight evenly.

The Y-15 and T-16 are available in a choice of three temple styles: Acetate spatula, acetate cable and metal spatula. The new eyewear features Bal-Safe lenses in clear or Ray-Ban shades. Side shields can be quickly attached for added protection.

SPONGE SWEAT BAND

(Use Key # 795 on Inquiry Card on page 1)

SWEAT BANDS manufactured from polyeurethane foam are being offered by the A. E. Halperin Co. The Halco bands said to be highly absorbent, are kept securely in place on the forehead by means of a ¼" elastic head band. This eliminates the necessity of using metal clips which might prove irritating to the scalp. This hot weather comfort aid is reported to be inexpensively priced.

ALUMINUM LEGGINGS FOR PROTECTION FROM SNAKES

(Use Key # 796 on Inquiry Card on page 1)

LIGHTWEIGHT adjustable leggings, manufactured by Kaufman's, are designed to protect the wearer from the danger of snake bite. The aluminum calf guards slip on and off easily and are comfortable to wear. One size fits all legs, providing complete enclosure. During the warm weather months, poisonous snakes constitute a hazard to linemen, highway workers, foresters and other personnel whose jobs keep them out of doors and often in areas of heavy undergrowth.

EMERGENCY AIR MASK

(Use Key # 797 on Inquiry Card on page 1)

RAPID EXIT from excessively contaminated or oxygen-deficient atmospheres is promised in a new Air Escape Mask announced by Mine Safety Appliances Co. The self-contained eight-pound unit, carried on a nylon harness, is designed for virtually instant operation in emergencies. The demand regulator is incorporated directly into the compressed air cylinder, thus eliminating the need for manual valve operation. With mouthpiece and nose clip in place, the escape mask is ready for service under normal breathing conditions. It provides protection under exertion for approximately five minutes.

The escape mask assembly can be worn for long periods before actual use. Unit weight is evenly distributed, with cylinder and regulator attached to an aluminum plate worn on the hip. The shoulder strap of the harness provides a "keeper" for retaining mouthpiece, exhalation valve, and nose clip assembly within easy reach of the wearer. The air cylinder contains 6.5 cubic feet of compresed air when fully charged. Re-filling can be achieved quickly; a filter protects the re-filling hose from entrance of contaminants such as rust.

SHEET STEEL SEPARATOR

(Use Key # 798 on Inquiry Card on page 1)

A HANDLING TOOL which separates steel sheets, without any effort on the part of the worker, is being marketed by the E. V. Nielsin Co. The permanent magnetic units of the Basco Separator set up a magnetic field which causes the sheets to repel each other and the top ones to fan out with a uniform air space between them. The worker can then easily remove the top sheet, whereupon the sheets below automatically move up. It will separate any shape or size sheet steel whether nested or corrugated and will even separate sheets bonded together by oil or preservatives. With the use of several of these units the top sheets can be "floated," completely separating them from those below. Device is reported capable of substantially reducing worker injuries resulting from the handling of sheet steel.

SMOKE MASK FOR FIREMEN

(Use Key # 799 on Inquiry Card on page 1)

NEW MASK from Acme Protection Equipment Co. features the following: A canister with See-O Indicating Window, which tells how long canister will protect against CO. Spring loaded valve decreases leakage of air into top of canister when not in use. New, abrasion resistant canvas pouch contains both canister and face piece when mask is out of use; pouch has large opening in bottom, heavy zipper in top. Full-Vision face piece is claimed to permit the best all-around vision of any available firemen's mask, by virtue of the lenses being closer to the eyes.

FIRE-RESISTANT SKYLIGHTS

(Use Key # 800 on Inquiry Card on page 1)

A FIRE-RETARDANT translucent plastic skylight is being offered by Consolidated General Products, Inc. The new shatter- and crack-proof models are made possible by an exclusive molding technique using an inherently fire-resistant, self-extinguishing polyester resin, Hetron 93-LS, a product of the Durez Plastics Div. of Hooker Chemical Corp. Of reinforced-fiberglass construction, the glare-free skylight is said to combine excellent strength and weathering qualities. The manufacturer states that unit will not support combustion even if ignited by direct application of flame.

Material is also reported to be unaffected by industrial fumes, salt water, ordinary detergents, etc. Units are dome type, either single or double dome. They are described as being practically indestructible. Available in pale green or mist white. High level of natural interior diffused light provided by these skylights is said to reduce cost of artificial illumination. The Consolite double domes save on fuel costs in winter and help prevent overloading of air conditioning systems in the summer.

EXTRA BRILLIANT LIGHT BULB

(Use Key # 801 on Inquiry Card on page 1)

AN ELECTRIC bulb that illuminates with the intensity and color of natural sunlight the interiors of a plant or commercial establishment has been announced by the Duro-Test Corp. The bulb is a Fluomeric, a development that combines features of incandescent, fluorescent and mercury vapor lighting. In 1750 watts, it delivers almost 60,000 lumens. Operating without ballasts, new wiring or special sockets, bulb screws into an ordinary incandescent mogul socket, doubling the light at work levels without increasing wattage. It is the brightest bulb that can be used in an incandescent fixture.

Life-rated for 10,000 to 12,000 user-hours, the lamp is said to outlast conventional bulbs by as much as a dozen times, effecting substantial maintenance savings. Its unusual brilliance and color rendition make Fluomeric especially suitable for high bay or pole lighting, indoors or out. Reported resistant to rain, sleet, snow, sudden temperature changes, insects, and vibration.

RIDER-TYPE FLOOR MACHINE

(Use Key # 802 on Inquiry Card on page 1)

A SCRUBBER-VACUUM machine capable of cleaning up to 64,500 square feet of open floor area an hour has been introduced by Finnell System, Inc. Designed for industrial users with a minimum of 50,000 sq. ft. areas to be cleaned, the Finnell 72-F will remove dirt and grime by the action of four 18-inch brushes operating at 180 r.p.m. under variable pounds of pressure on the floor. The brushes agitate a cleaning solution dispensed from a 150-gallon solution tank.

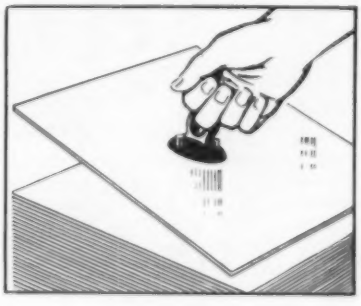
A giant-sized V-shaped squeegee funnels loosened dirt into a 150-gallon pickup tank via a 75 c.f.m. vacuum. The 72-F is powered by an air cooled 27 h.p. gas or propane engine, all brush and squeegee movements are actuated by a hydraulic power takeoff system controlled by the operator.

With an over-all length of 114 inches and a width of 72 inches, machine can turn in its own length, operate effectively in a 10-foot wide aisle and turn around in an intersection of 10-foot aisles.

RING STYLE VACUUM LIFTER

(Use Key # 803 on Inquiry Card on page 1)

A ONE PIECE, flexible neoprene vacuum lifter has been designed by the Safety Vacuum Lifter Co. for picking up small parts, sheets and strips of metal, plastic, fiber, glass, tile and other nonporous materials. The unit is worn on the back of the finger, where it is out of the way but on hand when needed. Device is said to speed operation, while protecting worker's hands from burrs and sharp edges, as well as preventing soil and perspiration from marking finished surfaces. Pressing to surface of sheet or part produces instant vacuum. Material is held securely until lifter is released with a light touch on one of the two tabs provided.



IMPROVED SAFETY SAW

(Use Key # 804 on Inquiry Card on page 1)

A NEW AIR-COOLED head makes the Stryker Safety-Saw more convenient to operate. Like its predecessor, the new model features an oscillating blade which cuts hard surfaces without damaging skin or clothing; in addition, it also incorporates small vent holes in the head which permit the fan on the motor to cool the head while tool is in use. This design is said to make the saw more comfortable to handle during prolonged use, since it no longer overheats as a result. Used for cutting openings in wood or plaster, for precision work, etc.

PLASTIC COATING FOR METALS

(Use Key # 805 on Inquiry Card on page 1)

AN ABRASIVE-, moisture- and shock-resistant transparent film which may be applied as a semi-permanent or temporary coating to protect metals against corrosion, is being marketed by the Fidelity Chemical Corp. Dip-pak #637 leaves no film of any type on metal when stripped away. Coating may be easily peeled off and is reusable. It is suggested for use primarily as a stop-off during electroplating or painting operations.

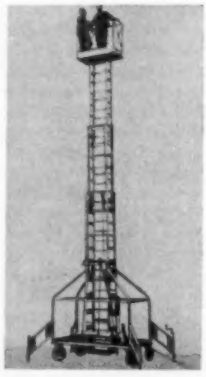
Its base plastic is cellulose acetate butyrate, which is clear in color and extremely resistant to darkening under heat. The formulation melts at 360°F. in melting pot and may be used at 320° to 350°F. #637 shows no corrosion after the following cycle: 16 hours at 100°F.; 100% relative humidity; 3 hours at —40°F.; 2 hours at 160°F.; 3 hours in 5% NaCL solution.

SAFE CHEMICAL CLEANER

(Use Key # 807 on Inquiry Card on page 1)

A NEW CHEMICAL action cleaner that mixes with water for safety and economy is on the market from Conco Chemical Co. Fire hazards and skin rashes, inherent in conventional solvent-type and acid-type cleaners, can be eliminated through the use of non-flammable, nontoxic Conco 1245, the company states. It can be used without danger on operating engines or near welding and forging.

Product is said to be effective in cleaning all types of equipment, and is desirable prerequisite to painting of equipment, to remove oil and grease films, preventing blistering, peeling and chipping of the paint.



MOBILE WORK PLATFORM

(Use Key # 808 on Inquiry Card on page 1)

NEW WORK PLATFORM from Atlas Industrial Corp. is mounted on a sturdy trailer built for tough road conditions. Unit can be rolled over the toughest terrain where overhead maintenance is a problem.

The unit is one piece with no loose parts. It comes ready for work—nothing to set up—and may be used at any desired heights. All welded sturdy steel construction, leveling jacks, and all the Atlas features assure absolute safety. The mobile platform is designed for overhead maintenance such as painting, lighting, cleaning, wiring, reaching pipes, etc.

TRANSISTOR MEGAPHONE

(Use Key # 809 on Inquiry Card on page 1)

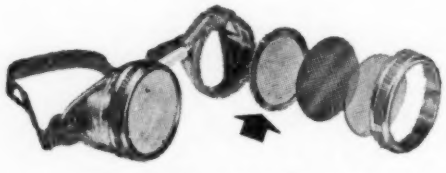
A POWER MEGAPHONE employing transistors and virtually unbreakable has been announced by the Wm. A. Holmin Corp. Model A-12 Voice Gun weighs only 3¼ pounds and is a self-contained public address system consisting of microphone, transistor amplifier, speaker and power supply. Horn, handle and mouthpiece are made of molded Cycolac. Megaphone has been dropped from platforms onto concrete pavements without damage, other than slight scuffing. It is designed to function equally well in heat and sun, rain and snow, and in sub-zero cold.

Use of transistors instead of tubes eliminates such problems as burned out filaments, broken glass and worn out parts. Unit is equipped with eight penlight batteries.

VESSEL THERMOMETERS

(Use Key # 810 on Inquiry Card on page 1)

ACCURATE MEASUREMENT of temperatures in deep vats, kettles, tanks, stacks, ovens, ducts, and other such vessels, is made possible with this new giant stem stainless steel thermometer, reports the maker, W. C. Dillon & Co., Inc. All units are engineered to withstand pressures up to 3476 psi and can be used for both liquids and gases. Hand calibrated for accuracies within 1% of the full scale reading. Dillon 6 ft. stem thermometers are available in temperature ranges from 0–200° F. to 200–1000° F. Also supplied in Centigrade calibrations. Large 5" dial makes reading easy and positive. Other dial sizes are $1\frac{5}{32}$", $1\frac{11}{16}$", $2\frac{5}{16}$" and 3".



NEW WELDERS' GOGGLES

(Use Key # 806 on Inquiry Card on page 1)

BETTER VISION for welders through use of See-Weld Magnifying Goggles is claimed by the manufacturer, The Buell W. Nutt Co. The product is said to eliminate the need for spectacles and cover-glass goggles while welding. The new goggle is light in weight, comfortable to wear, and provides a wide range of vision. Lenses are offered in 10 focal or magnifying powers to properly supply the varying visual requirements of different welders. The lenses are available as separate items, for use in standard welding goggles.

WATERLESS HAND CLEANER

(Use Key # 811 on Inquiry Card on page 1)

A PASTE hand cleaner, based on petroleum distillate solvent cleaning action, and containing a high proportion of lanolin to prevent chapping, is offered by Pemba Products Co. The product, Lav-It, is reported to be free of harmful irritants and to have a creamy consistency and pleasant odor. It is said to remove grease, soil, inks, adhesives, tar, graphite, asphalt, carbon stains and some paints.

IMPROVED WORK GLOVE

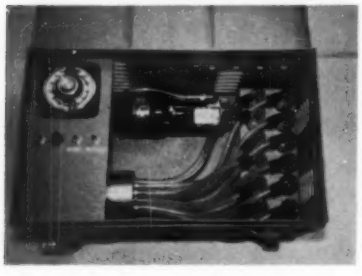
(Use Key # 812 on Inquiry Card on page 1)

IMPROVEMENTS IN the coating compound make the Monkey Grip work glove, a product of Edmont, Inc., tougher and longer wearing than ever before. More comfort has been achieved by the use of a 2-piece liner which eliminates all seams from the work area. The vinyl plastic glove provides dependable dry grip and is job-fitted for handling rough, abrasive materials. Available in a variety of styles, including gauntlets, palm or knitwrists, and several types with triple-thick palms. Fully-coated styles are guaranteed liquid-proof and are designed for handling in oils, acids, caustics and alcohols. All styles made with curved, preflexed fingers and wing thumb.

NEW SEQUENTIAL SAMPLER FOR AIR ANALYSIS

(Use Key # 813 on Inquiry Card on page 1)

A PORTABLE instrument which automatically collects air samples, eliminating the need to have personnel in constant attendance, is available from Gelman Instrument Co. The new sequential sampler can be used for either gas determination, dust counting, or both simultaneously. A vacuum pump is connected to a special 12 position valve which in turn is connected to 12 gas collectors or filter holders. Valve is automatically switched from one position to the next so that 12 samples of air are collected in sequence; sampler then shuts itself off.



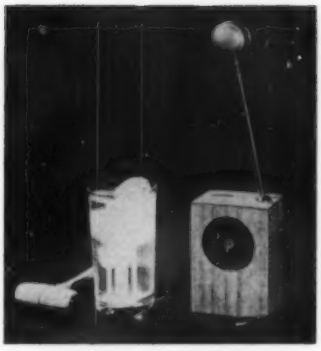
Operating sequence is controlled by a dial adjusted timer. Cycle time is set by moving dial to time desired. Thus if dial A is set at 2 hours, sampler will take samples every 2 hours for a total of 24 hours. Dial B controls operating time of the pump. Sampler may be used with filter holders for collecting dust samples. Gas samples can be collected in midget charcoal traps.

PORTABLE EXHAUSTER

(Use Key # 814 on Inquiry Card on page 1)

A SUPER-EFFICIENT compact exhauster unit that rolls to the work, swallows dangerous carbon monoxide fumes and protects workmen, has been announced by Car-Mon Products, Inc. Called Car-Mon Portable Exhauster, it cleans the air of gases, fumes, smoke and heat, so that any area can be used safely for welding, soldering or brazing operations. Long flexible weld-proof tubing makes it easy to locate the receptor right at the source. The receptor intake has a lifetime magnetic base that holds fast, right on the work or on any nearby metal. Tubing and receptor intake are attached as easily as vacuum cleaner attachments.

Up to 24 feet of tubing can be attached to the fan discharge to expel fumes away from the operator or out of the building. The exhaust unit is mounted on a sturdy rubber-wheeled truck which, when not in use, stands on end in any 25" x 31" area. Exhauster's permanently sealed ball-bearing motor never needs lubrication. High-suction fan is housed in welded heavy steel with radial wheel of cast aluminum. Unit also includes vibration pads, stream-lined steel tapered elbow air flow tubing and fan discharge elbow; 8-ft. x 4-in. flexible hose.



PERSONAL P A UNIT

(Use Key # 815 on Inquiry Card on page 1)

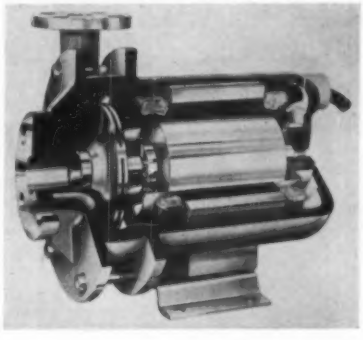
A PUBLIC ADDRESS device that weighs only 11 ounces and may be worn comfortably on the speaker, suspended by a neck ribbon, is being offered by J. B. Moore Laboratories, Inc. Microphone is mounted on an extendable boom for easy adjustment to the individual's mouth; when not in use, boom recesses into case. Called PPA, the unit is attractively cased in formica, powered by a 9-volt mercury battery and uses a transistor circuit to assure faithful reproduction of the spoken voice, for meetings of up to 100 or more people.

LEAK-PROOF "CANNED" PUMPS

(Use Key # 816 on Inquiry Card on page 1)

A NEW LINE of canned pumps designed for leak-proof handling of dangerous or expensive fluids has been introduced by Moyno Pump Div. of Robbins & Myers, Inc. The new unit is a completely self-contained motor-pump in which the material being handled circulates within the motor. The pump impeller is connected directly to the motor shaft. Accordingly, no seals, packing or stuffing box are required and the pump is thereby completely leak-proof.

The motor rotor and field are encased in stainless steel "cans," heliarc welded during fabrication to isolate them from the material being pumped. The pumped fluid lubricates the entire unit. Stainless steel pump is designed for all-angle installation. Available in ½, ¾ and 1 horsepower ratings with capacities to 63 gallons per minute.



FLOOR SCRUBBER—POLISHER

(Use Key # 817 on Inquiry Card on page 1)

ESPECIALLY DESIGNED for cleaning partially obstructed and high traffic areas found in supermarkets, department stores, office buildings, etc., the new 21" Convertamatic floor maintenance machine made by Advance Floor Machine Co. performs two basic maintenance operations. In one pass over the floor, the machine lays the cleaning solution, scrubs a 21" swath, vacuums dirty solution and finally dries the floor. Machine may also be used for buffing and vacuuming.

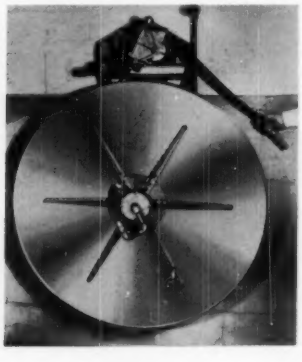
Exclusive ball joint suspension squeegee automatically adjusts itself against both straight and curved walls for complete, thorough pick-up; and also adjusts from left to right for positive tracking. Self-propelling power is supplied by four standard size batteries. Power-Flo Drive eliminates need for troublesome clutch, transmission and differential; greatly reduces drain on battery because no power is required to turn wheels. Machine cleans up to 80,000 sq. ft. and more on one battery charge. 24" machine also available.

WALL-MOUNTED FIRE HOSE

(Use Key # 818 on Inquiry Card on page 1)

INDUSTRIAL fire protection which bridges the gap between hand fire extinguishers and regulation fire hose or sprinkler system, is claimed for Hide-A-Hose. The ⅝ in. hose can also be used for washing concrete floors, etc. When not in service, it is stored on a wall-mounted reel, where it is completely out of the way. Hose comes off the reel smoothly and without sticking. Hose nozzle is adjustable to give either a smothering fog or an energetic stream. Water damage is held to a minimum since the water is directed only at the blaze.

Standard model includes: (1) 150 ft. of high-grade rubber-and-nylon garden hose; (2) brass fog and stream nozzle; (3) double-flanged aluminum hose reel, 44 in. in diameter; (4) aluminum hose-guide wheel pivot hanger with roller bearings and (5) aluminum hose-guard pulley, 5 in. in diameter. The guard pulley swivels 180 degrees, allowing the hose to be pulled out in any direction. Four concave aluminum rollers, $1\frac{5}{16}$ in. in diameter by 1⅛ in. face width, provide bearings for all directions of hose travel. The shift of hose from roller to roller is accomplished automatically as the guard pulley turns. The action of pulling out the hose automatically releases a brake on the hose reel. When the pulling stops, the brake engages the reel to hold the hose at that point.



NEW WELDER'S GLOVE

(Use Key # 819 on Inquiry Card on page 1)

IMPORTED CARPINCHO is the leather used by Singer Glove Mfg. Co. in this new line of welder's gloves. It is a soft, supple leather that is said to resist heat shrinkage better than any other leather known to the welding industry. It is tough, yet soft and flexible. Another feature which prolongs glove life is the extra wide reinforcement in thumb crotch, the point of greatest wear in most welding jobs. Available in 13½" gloves and mittens; also in a driver's-type glove for light welding and general work.

SYNTHETIC FIBER ROPE

(Use Key # 820 on Inquiry Card on page 1)

A NEW SYNTHETIC fiber rope, Polypropylene, manufactured by Dawbarn Bros., Inc., is said to have a surpassing combination of useful properties. It is reported to be the cheapest of all synthetic ropes, to outlast manila two to three times, and to absorb less than ½ of 1% moisture; it is not attacked at all by mildew. Its virtual imperviousness to water means that the user can count on the same strength, wet or dry, as well as the same elongation, light weight, storability, knotting qualities, etc. The rope is offered in a wide range of colors for industrial safety and other applications.

PLANT VISITOR'S SPECTACLE

(Use Key # 821 on Inquiry Card on page 1)

INEXPENSIVE EYE protection for visitors to industrial plants, in the form of a lightweight, all-plastic spectacle, is being manufactured by American Optical Co. The device offers a wide area of coverage through a shield-like single lens which covers both eyes. Lenses are available in either clear or green in a clear crystal frame.

MATERIAL HANDLING POLE

(Use Key # 822 on Inquiry Card on page 1)

THIS NEW TOOL, introduced by Industrial Products Co., provides a practical manual method of guiding heavy materials into place, in the shop or when loading trucks and railroad cars, and offers protection to hands and fingers. The "Hands Off" pole permits user to stand in the clear, thus preventing him from being caught between load and solid member when moving steel products, plates, sheet, frames, girders and lumber. Serrated aluminum head is designed so that the hook or "thumb" end can quickly engage the load in a secure position. Standard length is 50 inches. Furnished with replaceable white ash handle.

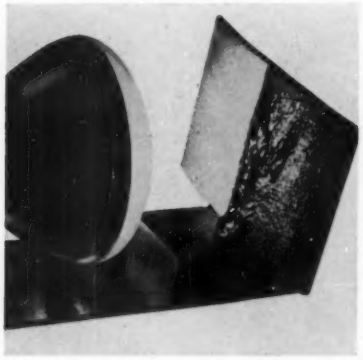
DAYLIGHT WARNING FLASHER

(Use Key # 823 on Inquiry Card on page 1)

A PORTABLE warning light has been introduced by R. E. Dietz Co. to help provide an extra safety margin for men working at job sites during daylight hours when emergency repairs must be made

quickly in the midst of heavy traffic or poor visibility conditions. Finished in beacon yellow and available with either amber or red lenses, the No. 685 flasher can be either used on a warning mast type mounting that contains two 9-volt hotshot batteries or on an extendible metal tripod that raises the flasher to a height 11½ feet above ground. Tripod arrangement allows passing motorists to see the flasher even from behind parked work vehicles or the end of a long row of cars.

Clearly visible in daylight, the new No. 685 flasher has an 8-inch parabolic reflector lens; its transistorized circuit produces 1365 candle power at the rate of 50 flashes per minute over a 130-hour period. Equipped with a carrying handle and mounting bracket, it weighs 12 pounds without batteries. Other features include: toggle switch operation; 12-ft. coiled extension cord with heavy duty threaded and indexed battery connector; large, strong cotter pins, linked by a chain, for quickly fastening or disassembling the unit from its mounting; and a meter for recording remaining battery life.



SILICONED ROOF COATING

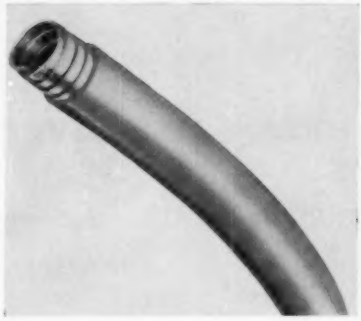
(Use Key # 824 on Inquiry Card on page 1)

A NEW SILICONED aluminum-asbestos roof coating, available in several colors, has been announced by Monroe Co., Inc. Special formulation is said to prevent fading, bleeding and discoloration. It is also reported to have greater roof coverage characteristics, give long-lasting protection against water and heat, minimize roof maintenance, and improve air conditioning efficiency. Product performs with equal effectiveness on asphalt and asbestos shingles or composition roofs, manufacturer states. It can also be used on concrete block, metal and stucco walls, as well as on asbestos cement siding. Pictured are asbestolite coating, left, and ordinary roofing material being subjected to infrared heat test. Poor reflective properties of ordinary material cause it to blister and soften.

FLEXIBLE STEEL CONDUIT

(Use Key # 825 on Inquiry Card on page 1)

LIQUID-TIGHT flexible steel conduit featuring a polyvinyl chloride synthetic resin cover, and having U.L. approval as



protection for wiring used in wet areas, is being produced by The International Metal Hose Co. for use on pumps, pressers, welders, grinders, blowers, conveyors, machine and portable tools and on automatic lines for foregoing plating molding, blasting, rolling, die casting, processing, extruding, etc. In addition to keeping wiring safe and dry the conduit, called Sealed Skin, is equipped with a copper wire positive ground and provides complete protection against liquid and moisture vapor conditions. It also absorbs vibration and resists flame, oil, grease, dirt, chemicals, fumes and salt spray. It installs quickly and easily. Extreme flexibility makes it particularly suited for connections between moving members and stationary parts.

PORTABLE VACUUM CLEANER

(Use Key # 826 on Inquiry Card on page 1)

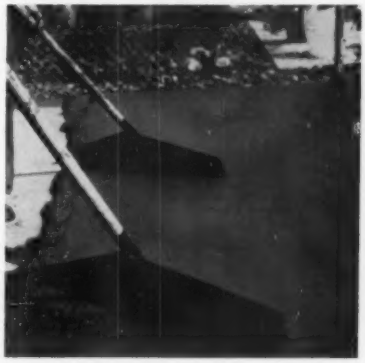
DESIGNED specifically for cleaning interiors of Boeing 707 jets, Port-a-Pac 707 has been adapted for general cleaning applications where maximum portability is required. The unit can be hand carried, strapped to the back, pulled along the floor on its runners, or hung to a fixture. It weighs only 17½ pounds, has one cubic foot capacity. The machine is entirely air operated and has the same high suction power as larger Vac-U-Max units. Non-electric, and with no moving parts, it can be operated even in hazardous locations. Designed for dry pick-up only, the 707 is suitable for automotive, railroad, marine and airplane interiors for cleaning hard-to-get-to places.

DEHUMIDIFIER KITS

(Use Key # 827 on Inquiry Card on page 1)

THREE NEW dehumidifier kits, No.'s 2, 5 and 10 announced by Speco, Inc., are said to absorb up to 5, 12 and 24 gallons

of moisture, respectively, from the air. Each kit contains a Super Hum-I-Dri, a refill and a rust-resistant drip pail. Super Hum-I-Dri consists of a bag of activated chemicals that is reputed to absorb up to 12 times its own weight in moisture. Unlike many chemical dehumidifiers, it requires no "baking" or drying out. It is claimed to remain completely active until the chemicals entirely disappear. Applications include placement of Hum-I-Dri pails in closets, bathrooms, lavatories, basements and recreation rooms. It protects tools, guns, fishing tackle, leather goods, radios, clothing and other items subject to moisture damage. A special ingredient, E-1, also eliminates odors and protects against moths.



SKID-PROOF RESURFACER

(Use Key # 828 on Inquiry Card on page 1)

A MOISTURE-TIGHT resurfacing topping, available in attractive colors for all types of bituminous pavements, is offered by the Revere Chemical Corp. The product, Color-Top, is a heavy fibrous-filled compound said to be weather resistant, skid-proof and uniformly attractive under all types of traffic. It prevents the asphaltic surface of the pavement from oxidizing, a cause of surface disintegration. Once filled, the surface is free from gritty, floating materials.

ELECTRIC SAFETY SWITCHES

(Use Key # 829 on Inquiry Card on page 1)

IMPORTANT DESIGN EXTRAS in this new safety switch from American Electric Switch Div., Clark Controller Co., include: visible double blade construction; positive, quick-make and quick-break operation; double insulation between blades and operating mechanism; optimum-size enclosures for maximum heat dissipation; plenty of wiring space for easier, faster installation; and an exclusive safety-yellow operating handle for quick "spotting" even in poor light. Fail-safe feature assures switch can be opened even if double insulation fails.

It meets NEMA Standards for normal duty industrial and commercial use and is approved by Underwriters' Laboratories for these applications as well as for service entrance equipment. It is currently available in 30-ampere and 60-ampere, 250 and 600 volt ratings, both fusible and non-fusible.

zone mail indeed results in speed

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

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SEND THIS PERSONAL SAFETY MESSAGE TO EVERY ONE OF YOUR EMPLOYEES.

- Safety is made appealing . . . vivid . . . engaging . . . colorful!
- Each worker clearly sees how safety benefits him . . . how doing his part helps others!
- You get enthusiastic safety cooperation instead of tolerance . . . from every employee . . . every month!

. . . talks the worker's language!

YOUR IMPRINT HERE!

packed with pictures, alive with animated cartoons, touched with humour that gives snap to your message, it makes safety interesting and down to earth. Twelve times a year it covers accident hazards. Across the nation leading industrial firms state it's the only safety paper their employees will read . . . and take home to their families.

It gives the employer the advantages of personal contact . . . saves time and expense. One "lost time" accident prevented . . . more than pays for the yearly cost! Try it . . . it works!

YOUR SIGNATURE HERE!

Make *Your Safety News* your own publication . . . your good will ambassador . . . working for you toward better industrial relations. If you wish, your facsimile signature can be printed here to identify you with the message that gets next to your men and boosts morale.

NOTE: *Your Safety News* is designed to promote better employer-employee relations. Every item is carefully weighed and tailored to this viewpoint!

INSIDE PAGES
(Pages 2 and 3)

THOUGHTLESSNESS IS A THIEF
He'll steal his way into what you're doing, distract your attention and walk off with a finger, arm, eye or foot. Thoughtlessness takes many forms: it may be daydreaming, or worry about some personal problem, or just plain inattention. Anything that distracts you, especially around machinery, is a thief of your personal safety.
PLAYFULNESS IS A PIRATE
He is a deceptive rascal. His high-jinks may put him in the spotlight, but his practical jokes and showing-off often result in serious bodily injury and even death. And note this: he, himself, has lost a leg! As so often happens, horseplay can boomerang and the practical joker gets hurt too!
What You Should Know About Carbon Monoxide
This is a picture of carbon monoxide gas!
That's right, you can't see it. It's colorless, non-irritating, tasteless, practically odorless, but also deadly.
Here are the symptoms of carbon monoxide poisoning: First, a slight feeling across the forehead, followed by headache, throbbing temples, weariness, weakness, dizziness, nausea, loss of muscular control, increased pulse and breathing; BUT if the concentration of the poison gas is high, there may be loss of consciousness without these warning signals.
Just a few breaths of air containing 1% carbon monoxide can be fatal . . . so can one part of carbon monoxide in a thousand parts of air when breathed for 90 minutes.
It is possible for carbon monoxide to leak inside of a car if there is a loose exhaust pipe or manifold connection, blown-out exhaust gasket, cracked exhaust manifold, or leaky muffler, they it safe.
1. Be sure your muffler and exhaust are in good condition (they can leak long before they become noisy).
2. Always keep a car window open, even a little, for fresh air.
AN INTIMATE LOOK AT FOUR VILLAINS
SAFETY LAZINESS IS A SIMON LEGREE
If you are lazy about safety rules, then accidents will have the whip hand. We are safety-lazy when we don't bother to use mechanical guards, to take time to get the right tools for the job, to wear protective equipment such as goggles, hard hats, safety shoes, respirators, gloves, etc. Yes, Simon Legree has a whole pack of accident hounds to hunt you.
HAZARDOUS METHODS ARE A HOLD-UP MAN
This villain, unsafe work habits, likes to lie in ambush for the unwary. But how do we fall into bad working habits? It may be by trying to cut corners, by wanting to keep to the old way of doing things, or by over-confidence. It's hard for anyone to believe that an accident can happen to him. It's easier to make excuses to ourselves for ignoring safety rules, but alibis only lead us up a blind alley with an accident waiting in ambush.
Two Excellent Reasons
For Wearing Safety Shoes

EMPHASIZES SELF INTEREST

Your employee's self interest in his own safety is always emphasized. Constant safety consciousness is promoted by covering household hazards, transit to and from the job and on the job caution against accidents.

CLEVERLY ILLUSTRATES THE POINT

Artwork is carefully chosen to lodge home each point persuasively. The cartoon style makes YOUR SAFETY NEWS as familiar and welcome as the picture packed Sunday supplement.

WINS READERS WITH A FOLKSY APPROACH

Keeping the contents folksy, adding the light note of humor, gets your message across with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of indifference.

RIVETS ATTENTION WITH VIVID COLOR

Generous use of color sparks the message, and adds impact to the contents of YOUR SAFETY NEWS. Each issue is as alive as any news-stand favorite.

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